

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 2017-18)-II

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 2017-2018
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

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S. B ARTS AND K. C. P SCIENCE COLLEGE,
SHRI B. M. PATIL ROAD (Solapur Road), VIJAYAPUR
ACCREDITED at 'A' Grade in 3rd Cycle by NAAC
Phone: (08352) – 261766, (08352) 262770 Extn. 2223, 2224
Fax: 08352 – 261766 E-mail: bldeasbkcp@gmail.com Web: www.bldeasbkcp.org



REF: _____

Date: 08-Aug-2017

Department of PG Studies in Physics
Value Added Course: 2017-2018

NOTICE

Notice to inform about Value Added course for the year 2017-2018 for M. Sc III Sem Physics students. Students have to enroll their names in the departments on or before 08th of August 2017. Last date for the submission of enrollment forms is 14th of August 2017.

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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

Theory Syllabus

Total hours allotted: 30 hours

Unit:I

5hrs

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).

Unit:II

5hrs

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.

Unit:III

8hrs

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.

Unit:IV

2hrs

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

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)

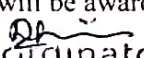
Practical Syllabus: List of experiments

(Each practical of two hours)


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.

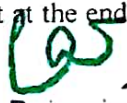
Evaluation:

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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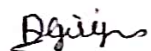

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Value Added Course 2017-2018
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List of Faculty

1. Dr. Girija M. Nimbale
2. Mr. Shreekant S. Biradar



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












Principal

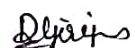
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Department of PG Studies in PHYSICS
Value Added Course 2017-2018
Course Name: Instrumentation
Course Code: SBKCP/PGPHY/VAC/01

List of Students Enrolled

M. Sc III Semester

Roll. No	Candidate's Name	Signature
1	Amrutesh Kannoli	
2	Anuradha I Jangamashetti	
3	Bhgyshree Herkal	
4	T.Chaitra	
5	Lata M.Kembhavimath	
6	Jyoti Ukumnal	
7	Mahantesh Pattanshetti	
8	Niyaz Ahmed Bagwan	
9	Rajakumar Golgai	
10	Rani Badiger	
11	Rekha.S. Biradar	
12	Sheelavathi Moratagi	
13	Shivarajkumar Hiremath	
14	Zumra M.Inamdar	



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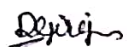


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Time Table

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)
2017 - 2018

B.L.D.E.

STUDENT ATTENDANCE

Sl. No.	Name	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Amrutesh Konnalli	Pr	Pr	Pr	Pr	Pr	Pr							
2	Anuradha T. Jangamshelli	Pr	Pr	Pr	Pr	Pr	Pr							
3	Bhagyashree Herkal	Pr	Pr	Pr	Pr	Pr	Pr							
4	T. Chaitra	Pr	Pr	Pr	Pr	Pr	Pr							
5	Lata M. Kumbhaviyath	Pr	Pr	Pr	Pr	Pr	Pr							
6	Jyoti Ukunnal	Pr	Pr	Pr	Pr	Pr	Pr							
7	Mahantesh Pallanishelli	Pr	Pr	Pr	Pr	Pr	Pr							
8	Niyaz Ahmed Bagwan	Pr	Pr	Pr	Pr	Pr	Pr							
9	Rajakumar Gargai	Pr	Pr	Pr	Pr	Pr	Pr							
10	Rani Badiger	Pr	Pr	Pr	Pr	Pr	Pr							
11	Rekha S. Bisadar	Pr	Pr	Pr	Pr	Pr	Pr							
12	Sherlaathi Moratagi	Pr	Pr	Pr	Pr	Pr	Pr							
13	Shivraj Kumar Hiremath	Pr	Pr	Pr	Pr	Pr	Pr							
14	Zumra M. Inamdar	Pr	Pr	Pr	Pr	Pr	Pr							
		7/01/18	8/01/18	9/01/18	10/01/18	11/01/18	12/01/18							

Association's

Practical Classes

REGISTER

	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	No. of days late	No. of days Present	Date of Original Admission of the class or of promotion	

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Web: www.bldeasbkcp.org



REF: _____

Date: 25/11/2017

Department of PG Studies in Physics

Value Added Course: 2017- 2018


NOTICE


The Value added Course 2017-2018 theory and Practical Examinations will be conducted on the following dates. All the enrolled students attend both the exams without fail.

	Date	Time
Theory	29/11/2017	2pm to 5.00 pm
Practical	30/11/2017	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 construction of Scintillation detectors.
2. Explain the basic principle underlying working of TEM.
3. Explain UV –Vis Spectroscopy.
4. Give the difference between STM and TEM.
5. Describe the importance of FTIR 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 differential scanning calorimetric (DSC) analysis.
9. Explain the construction of Scanning Electron Microscopy (SEM) with neat diagram.
10. Write a brief note on nuclear detector.


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

11. Explain different methods of XRD analysis.
12. Explain the structure determination by FTIR spectroscopy.
13. Explain impedance spectroscopy.
14. Explain the principle and working of Scintillation detector- NaI (TI) gamma ray spectrometer.


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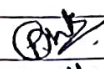
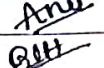
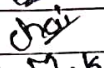
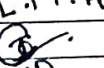
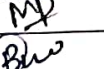
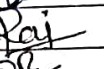
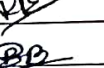

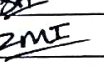






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Marks List

Maximum Marks: 100

Roll No.	Candidate's Name	Theory(60)	Practical(40)	Total	Sign
1	Amrutesh Kannolli	50	36	86	
2	Anuradha I Jangamashetti	52	36	88	
3	Bhgyshree Herkal	54	37	91	
4	T.Chaitra	55	37	92	
5	Lata M. Kembhavimath	54	35	89	
6	Jyoti Ukumnal	55	36	91	
7	Mahantesh Pattanshetti	57	37	94	
8	Niyaz Ahmed Bagwan	50	35	85	
9	Rajakumar Golgai	54	36	90	
10	Rani Badiger	55	37	92	
11	Rekha.S. Biradar	50	35	85	
12	Sheelavathi Moratagi	54	36	90	
13	Shivarajkumar Hiremath	48	35	83	
14	Zumra M. Inamdar	53	36	89	


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Course Outcome

A value added course on Instrumentation was conducted in Department of PG studies in Physics for M. Sc Final year students. The course was conducted between 19th August 2017 and 25th November 2017. Dr. Girija M. Nimbale and Mr. Shreekanth Biradar, 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. Amrutesh kannoli

has Completed the Value Added Course on Instrumentation

Conducted by the Department of M.sc Physics during the

Year 2017 - 2018


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Internal Quality Assurance Cell Initiative

VALUE ADDED COURSE

Certificate



This is to certify that Mr./Ms. Anurekha I Jungamashetti

has Completed the Value Added Course on Instrumentation

Conducted by the Department of M.sc physics during the

Year 2017-2018


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Internal Quality Assurance Cell Initiative

VALUE ADDED COURSE

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This is to certify that Mr./Ms. Bhgyshree Herkal

has Completed the Value Added Course on Instrumentation


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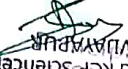
Year 2017-2018

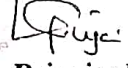

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This is to certify that Mr./Ms. T. Chaitra

has Completed the Value Added Course on Instrumentation

Conducted by the Department of M. sc physics during the

Year 2017-2018.


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 Internal Quality Assurance Cell Initiative
VALUE ADDED COURSE

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This is to certify that Mr./Ms. Lata M. Kembharnimath

has Completed the Value Added Course on Instrumentation

Conducted by the Department of M.Sc physics during the

Year 2017-2018.


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