

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 2016-17)**

Course Name: Instrumentation

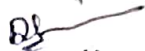
(Course Code: SBKCP/PGPHY/VAC/01)

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 2016-2017
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
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Principal,

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SHRI B. M. PATIL ROAD (Solapur Road), VIJAYAPUR
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Phone: (08352) - 261766, (08352) 262770 Extn 2223, 2224
Fax: 08352 - 261766 E-mail: bldeasbkcp@gmail.com Web: www.bldeasbkcp.org



REF: _____

Date: 12-Aug-2016

Department of PG Studies in Physics

Value Added Course: 2016-2017

NOTICE

Notice to inform about Value Added course for the year 2016-2017 for M. Sc III Sem Physics students. Students have to enroll their names in the departments on or before 19th of August 2016. Last date for the submission of enrollment forms is 24th of August 2016.

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S. B Arts and K. C. P Science College, Vijayapur
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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Value Added Course 2016-2017
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List of Faculty

1. Dr. S. C. Pattar
2. Dr. Girija M. Nimbale
3. Miss. Priyanka. A. Tonage



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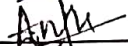

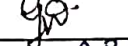
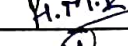


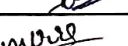
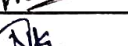
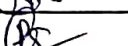
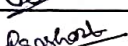
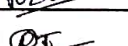
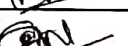

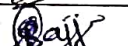
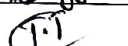

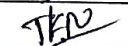


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Department of PG Studies in PHYSICS
Value Added Course 2016-2017
Course Name: Instrumentation
Course Code: SBKCP/PGPHY/VAC/01

List of Students Enrolled


M. Sc III Semester

Sl. No	Candidate's Name	Signature
1	Akshata Kodate	
2	Anjana Kenganal	
3	Deepa Ullagaddi	
4	Gouri Dongare	
5	Halli Mahesh Revappa	
6	Hunnur Anand Chananbasapa	
7	Ilayi Bagawan	
8	Imran Galagali	
9	Jyotiba More	
10	Niketa. Kanthimath	
11	Pooja Joshi	
12	Prashantraddi Gabasavalagi	
13	Rajendra Tungal	
14	Shahanaz Nadaf	
15	Sharanu Kore	
16	Soumya Sajjan	
17	Teerthankar Tonage	
18	Tejas Awale	
19	Thaisin Kutubuddin Nimbale	
20	Varnashree Biradar	


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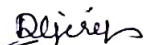

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Time Table

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)
2016 - 2017

BLDE

Association's

Theory Classes

STUDENT ATTENDANCE

REGISTER

Sl. No.	Name	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Akshata Kodali													
2	Anjana Kenganal													
3	Deepa Ullagaddi													
4	Jyoti Dongare													
5	Halli Mahesh Revappa													
6	Munasa Anand charanbasappa													
7	Jhaji Bagawan													
8	Taman Galagali													
9	Jyotika More													
10	Niketa Kanthumath													
11	Pooja Joshi													
12	Prashantbhai Chakrasarday													
13	Rajendra Tungal													
14	Shaharaz Nadaf													
15	Sharanu Kene													
16	Soumya Sajjan													
17	Teerthakar Tonage													
18	Tejas Awale													
19	Tharisa Kutubkhan Nihal													
20	Vannabhae Bisdar													

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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 late	No. of days present	Date of Original Admission of the class or of promotion	
1	Akshata Kodali																							
2	Anjana Kenganal																							
3	Deepa Ullagaddi																							
4	Jyoti Dongare																							
5	Halli Mahesh Revappa																							
6	Munasa Anand charanbasappa																							
7	Jhaji Bagawan																							
8	Taman Galagali																							
9	Jyotika More																							
10	Niketa Kanthumath																							
11	Pooja Joshi																							
12	Prashantbhai Chakrasarday																							
13	Rajendra Tungal																							
14	Shaharaz Nadaf																							
15	Sharanu Kene																							
16	Soumya Sajjan																							
17	Teerthakar Tonage																							
18	Tejas Awale																							
19	Tharisa Kutubkhan Nihal																							
20	Vannabhae Bisdar																							

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Web: www.bldeasbkcp.org



REF.: _____

Date: 09/12/2016

Department of PG Studies in Physics

Value Added Course: 2016- 2017

NOTICE

The Value added Course 2016-2017 theory and Practical Examinations will be conducted on the following dates. All the enrolled students attend both the exams without fail.

	Date	Time
Theory	20/12/2016	2pm to 5.00 pm
Practical	21/12/2016	2pm to 6.00 pm

Dejujers
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Value Added course: 2016- 2017

Course Name: Instrumentation
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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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Marks List

Maximum Marks: 100

Roll. No	Candidate's Name	Theory(60)	Practical(40)	Total	Sign
1	Akshata Kodate	50	40	90	Aksh
2	Anjana Kenganal	56	40	96	Anju
3	Deepa Ullagaddi	57	40	97	Dee
4	Gouri Dongare	53	40	93	G.D.
5	Halli Mahesh Revappa	50	40	90	H.M.R.
6	Hunnur Anand Chananbasapa	51	40	91	H.A.
7	Ilayi Bagawan	45	31	76	IB
8	Imran Galagali	50	35	85	Imr
9	Jyotiba More	50	38	88	J.M.
10	Niketa. Kanthimath	50	40	90	N.K.
11	Pooja Joshi	48	40	88	P.J.
12	Prashantraddi Gabasavalagi	48	34	82	P.G.
13	Rajendra Tungal	49	38	87	R.T.
14	Shahanaz Nadaf	57	40	97	S.N.
15	Sharanu Kore	45	35	80	S.K.
16	Soumya Sajjan	59	40	99	S.S.
17	Teerhankar Tonage	52	40	92	T.T.
18	Tejas Awale	40	30	70	T.A.
19	Thaisin Kutubuddin Nimbale	55	40	95	T.K.
20	Varnashree Biradar	50	40	90	V.B.


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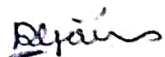
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Value Added Course 2016-2017
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Course Outcome

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 26th August 2016 and 10th December 2016 under the supervision of Dr. S. C. Pattar, Coordinator of Department of PG studies in Physics. Dr. Girija M. Nimbal and Miss Priyanka A. Tonage, 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. Anjana kengnal


has Completed the Value Added Course on Instrumentation

Conducted by the Department of M. Sc physics during the

Year 2016-2017


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Head of the Department


Co-Ordinator, IQAC


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This is to certify that Mr./Ms. Akshara Kolate


has Completed the Value Added Course on Instrumentation

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Deviya
Head of the Department


Co-Ordinator, IQAC


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Pooja
Principal



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VALUE ADDED COURSE


Certificate

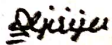
This is to certify that Mr./Ms. Deepa Ulagaddi


has Completed the Value Added Course on Instrumentation

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Year 2016-2017


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This is to certify that Mr./Ms. Gouri Dongare


has Completed the Value Added Course on Instrumentation


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Year 2016-2017


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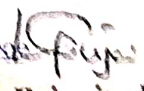
This is to certify that Mr./Ms. Halli Mahesh Devappa
has Completed the Value Added Course on Instrumentation
Conducted by the Department of M.Sc Physics during the
Year 2016-2017


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