

"Dissemination of Education for Knowledge, Science and Culture"

- Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

#### Vivekanand College, Kolhapur

(Autonomous).

Department of Physics
Value Added Course
on

# Basic Instrumentation in Physics

1st August 2019 to 30 October 2019

**Course Duration: 3 Months** 

Head

**Principal** 

Dr. G. J. Navathe

**Course Coordinator** 

Dr. M. M. Karanjkar

Dr. S. Y. Hongekar

Shri Swami Vivekanand Shikshan Sanstha's Vivekanand College (Autonomous), Kolhapur. Department of Physics (2019-2020) Syllabus for Add On Course

(Basic Instrumentation Course)

#### Unit: I

#### Thin Film Deposition Techniques:

- 1. Spray Pyrolysis Technique
- 2. Chemical bath depositions Technique
- 3. Silar Technique
- 4. Hydro thermal Technique
- 5. Electro deposition Technique
- 6. Reflux deposition Technique

#### Unit: II

#### Thin film Structural and morphological Characterization Techniques:

- 1. X-ray Diffraction Technique
- 2. Scanning electron Microscopic Technique
- 3. Raman Spectroscopic Technique
- 4. Infra red Spectroscopic Technique
- 5. UV Visible Spectroscopic Technique
- 6. Contact Angle

#### Unit: III

#### Thin film Electrochemical and Magnetic Characterization Techniques:

- 1. Cyclic voltammetry Technique
- 2. Charge Discharge Technique
- 3. Electro chemical impedance spectroscopy Technique
- 4. Vibrating Sample magnetometer

Unit: IV Field Visit



# Shri Swami Vivekanand Shikshan Sanstha's Vivekanand College (Autonomous), Kolhapur. Basic Instrumentation Course in Physics 2019-2020

#### Name List

Sr.	Name of the student	Roll no.	Mobile No.		
No.			9765678141		
1	Mr. Bote Sushant Suresh 76205				
2	Miss. Deshmukhe Aishwarya D		9503031726		
3	Mr. Deshmukh Mahesh Bhauso		7768929719		
4	Mr. Jadhav Amit Ashok		9511618281		
5	Mr. Jadhav Shivprasad Krishnarao		8484090476		
6	Miss. Kadam Ketaki Vasnat		7721003292		
7	Miss Kamble Susmita Chandar		9168520488		
8	Miss Mandavkar Ruchita Rajendra		9922709917		
9	Miss Nirmale Pooja Ashok		9158150190		
10	Mr. Patil Ashutosh Madukar				
11	Miss Patil Asmita Anandrao		7745820722		
12	Miss Patil Manisha Nanaso		9665954375		
13	Mr. Patil Pranit Mohanrao		7038565754		
14	Miss Patil Swati Dinkar		8484885241		
15	Miss Patole Anuradha L.		9881994004		
16	1 iss Phadatare Dhanashri Rajesh 911269				
17	Mr. Sherala Dinesh Naresh	Sherala Dinesh Naresh 705786			
18	Miss Shinde Amruta Anandrao		9067962233		
19	Mr. Tamboli Asif Jahangir		7972744863		
20	Miss Tamke Vaishanavi Namdeo 73559				
21	Mr.Bandgar Vishwambar Subhash		9145026690		
22	Miss. Chavan Jayashri Madhukar		9657891961		
23	Miss. Digraje Ankita Ravindra		8308480080		
24	Mr. Gadekar Mahesh Madhav		9767266388		
25	Miss. Jadhav Arati Kumar		9370724747		
26	Miss, Jadhav Dhanashri Chandrakant		7798396480		
27	Miss. Jadhav Pooja Sadanand		9730694160		
28	Miss. Kadam Priyanka Jitendra		7745040142		
29	Mr. Kesarkar Vinayak Baburao		7972382734		
30	Miss. Kumbhar Shraddha Sanjay		9623809031		
31	Miss. Mudhale Mayuri Ashok		8830884424		
32	Miss. Nadaf Anisa Ajij		9665486019		
33	Miss. Patil Priyanka Gundoji		7350527536		
34	Miss. Patil Sayali Jayasing		9325172487		



Miss. Patil Shital Viles	
	9766551479
Wiss. Patil Shivani Prakash	7058059753
Miss. Patil Snehal Saniay	9689940665
Miss. Salunkhe Samruddhi Shrikant	9545614736
Miss. Desai shiyani Suryakant	8329143636
Miss. Tivale Seema Raiesh	9765261113
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Coordinator
Dr. G. J Navathe
Add On Course
Department of Physics



# Attendance Report

STATE OF THE WAS THE WAS THE STATE OF THE ST	No S	Name of the student	19/8 20/8 26/6 28x 3/9 9/9 16/9 170 23/9 24/9 30/9 1/10 1/10 1/10 1	15/0
Miss Desimush Mahesh Bhanso  Mr. Jadhav Shirpasad Krishmano  Mr. Sadam Katshi Vasmar  Miss Padia Krishmano  Miss Padia Krishmano  Miss Padia Krishmano  Miss Padia Krishmano  Miss Padia Krish Vasmar  Miss Padia Krishmano  Miss Padia Krish Vasmar  Miss Dala Krish Vasmar  Miss Padia Krish  Miss Jadhay Arati Kumar  Miss Jadhay Proja Sadamand  Miss Jadhay Proja		Mr. Bote Sushant Suresh	本 五的女的是我 五郎 本一十	*
Mr. Jadhav Amir Ashok  Mr. Jadhav Amir Ashok  Mr. Sadam Kraki Vasnari  Miss Rander Survivorsad Krishmano  Mrs. Radam Kraki Vasnari  Mrs. Pari I Ashurosh Madukar  Mrs. Pari I Ashurosh Manash  Mrs. Jadhav Marish  Mrs. Jadhav Marish  Mrs. Jadhav Manash  Mrs. Jadhav Arati Kumar  Mrs. Jadhav Arati Kumar  Mrs. Jadhav Arati Kumar  Mrs. Jadhav Pooja Sadanand	2	Miss. Deshmukhe Aishwarya D	म का अधिका क्षेत्र कर के कि कि कि कि कि कि कि कि	S. art
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Miss Kamble Susmita Chandar  Miss Ramble Susmita Chandar  Miss Ramble Susmita Chandar  Miss Ramble Susmita Chandar  Miss Patil Asmita Annaharao  Miss Patil Asmita Annaharao  Miss Patil Asmita Annaharao  Miss Patil Swati Dinkar  Miss Patil Patil Mightar  Miss Patil Swati Dinkar  Miss Patil Swati Dinkar  Miss Jahlav Arati Kumar  Miss Jahlav Arati Kumar  Miss Jahlav Pooja Sadanand  Miss Fadana Priyanka Jitendra  Miss Fadam Priyanka Jitendra  Miss Fadama Priyank	+		これ くちりからいからしているとれているとう	3.5
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Miss Nandavkar Ruchita Rajendra  Miss Nimale Pooja Ashok  Miss Patil Ashutosh Madukar  Miss Jauhav Arati Kumar  Miss Jauhav Dhanashri Chandrakant  Miss Jauhav Dayanka Jilicndra  Miss Jauhav Dayanka Jilicndra  Miss Sadam Priyanka Jilicndra	7	Miss Kamble Susmita Chandar	THE A MENTER A A CAL	FI
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Miss Paril Asmira Anandrao  Miss Paril Manisha Nanaso  Miss Paril Manisha Nanaso  Miss Paril Manisha Nanaso  Miss Paril Pranit Mahukar  Miss Paril Pranit Mahukar  Miss Shinde Amruratha L.  Miss Shinde Amruratha Nandrao  Mr. Sherala Dinesh Narsh  Mr. Sherala Dinesh Narsh  Mr. Sherala Dinesh Narsh  Mr. Shangar Vishwambar Subhash  Mr. Shangar Vishwambar Subhash  Mr. Shangar Vishwambar Subhash  Mr. Sandar Mahesh Madhukar  Mr. Gadekar Mahesh Madhukar  Miss Jadhav Arati Kumar  Miss Jadhav Pooja Sadanand  Miss. Radam Priyanka Jitendra	10	Mr. Patil Ashutosh Madukar	A SHE A WALL SHALL SHALL SHEET OF THE SHEET SHEE	9
Miss Partil Manisha Nanaso  Mr. Partil Pranti Mohanrao  Miss Partil Pranti Mohanrao  Miss Partil Pranti Mohanrao  Miss Partil Pranti Mohanrao  Miss Partil Pranti Mohanrao  Mr. Sherala Dinesh Naresh  Miss Partil Cadekar Mahesh Madhav  Mr. Sadhav Arati Kumar  Mr. Gadekar Mahesh Madhav  Mrs. Jadhav Pranti Kumar  Mrs. Jadhav Pranti	=	Miss Patil Asmita Anandrao	TOWE ARD ARE 640 AND ASSOCIATE BAD LAS BAD LAND TO	2
Miss Patale Raurita Mohanrao  Miss Patile Pranti Mohanrao  Miss Patile Raurit Swati Dinkar  Miss Patole Anuradha L.  Miss Jadhav Arati Kumar  Miss. Jadhav Arati Kumar  Miss. Jadhav Pooja Sadanand  Miss. Sadhav Piyanka Jitendra  Miss. Sadhav Ponakha Jitendra  Miss. Sadhav Ponakha Jitendra  Miss. Sadhav Ponakha Jitendra  Miss. Sadhav Ponakha Jitendra  Miss. Sadhav Ponja Sadanand  Miss.	12		Prop Mar A Mar Mar A Mar A Mar A	t
Miss Patole Anuradha L.  Miss Jadhav Arati Kumar  Miss. Jadhav Arati Kumar  Miss. Jadhav Pooja Sadanand  Miss. Kadam Priyanka Jitendra	13		Photo My Brown port on proposed a profitory and	C Chelan
Miss Pladatare Dhanashri Rajesh  Miss Phadatare Dhanashri Rajesh  Mr. Sherala Dinesh Naresh  Mr. Sherala Dinesh Naresh  Mr. Sherala Dinesh Naresh  Mr. Bandgar Vishwambar Subhash  Mr. Bandgar	4	Miss Patil Swati Dinkar	246800 24 20450 50 A COO A 500 30	(50)
Mr. Sherala Dinesh Naresh  Mr. Sherala Dinesh Naresh  Mr. Sherala Dinesh Naresh  Miss Shinde Amruta Anandrao  Mr. Tamboli Asif Jahangir  Mr. Bandgar Vishwambar Subhash  Miss. Chavan Jayashri Madhukar  Mr. Bandgar Vishwambar Subhash  Mr. Gadekar Mahesh Madhav  Mr. Gadekar Mahesh Madhav  Mr. Jadhav Arati Kumar  Miss. Jadhav Pooja Sadanand	15	Miss Patole Anuradha L.	A A A A A A A A A A A A A A A A A A A	4
Mr. Sherala Dinesh Naresh  Miss Shinde Amruta Anandrao  Mr. Tamboli Asif Jahangir  Mr. Bandgar Vishwambar Subhash  Miss. Chavan Jayashri Madhukar  Mr. Gadekar Mahesh Madhav  Mrs. Jadhav Pooja Sadanand  Miss. Kadam Priyanka Jitendra  Mrs. Kadam Priyanka Jitendra	91	Miss Phadatare Dhanashri Rajesh	1 100 100 4 4 4 4 4 A 4 4 A 4 A 4 A 4 A 4 A 4 A	LDER
Miss. Jadhav Proja Sadanand  Miss. Ladhav Pooja Sadanand  Miss. Ladhav Pooja Sadanand  Miss. Ladhav Pooja Sadanand  Miss. Ladhav Priyanka Jitendra  Miss. Ladhav Pooja Sadanand  Miss. Ladhav Proja Radanand  Miss. Ladhav Proja Sadanand	11	Mr. Sherala Dinesh Naresh	THE THE PART OF THE PART A PRICE TO THE	+
Mr. Tamboli Asif Jahangir  Miss Tamke Vaishanavi Namdeo  Mr. Bandgar Vishwambar Subhash  Mr. Bandgar Vishwambar Subhash  Miss. Digraje Ankita Ravindra  Mr. Gadekar Mahesh Madhav  Mr. Gadekar Mahesh Mahesh Mr.	8	Miss Shinde Amruta Anandrao	and Brown of And And And And A	1
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Miss. Jadhav Pooja Sadanand  Miss. Kadam Priyanka Jitendra  Miss. Kadam Priyanka Jitendra  Miss. Kadam Priyanka Jitendra  Miss. Radam Priyanka Jitendra	22	Miss. Chavan Jayashri Madhukar	STREETER THE TIME JANG JANG JANG TANGER	1
Mr. Gadekar Mahesh Madhav  Miss. Jadhav Arati Kumar  Miss. Jadhav Pooja Sadanand  Miss. Kadam Priyanka Jitendra  Privally Privall	23		ANTIN ALL AND LOCA AND AND AND AND AND AND AND AND AND AN	
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	87	Miss. Kadam Priyanka Jitendra	Service Proposition ( 1 ) Con	TA TA

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# Attendance Report

No.	Name of the student	19/8 20/8 24x 21/0 319 310 19/0 12/0 12410 30/0 1/10 1/10 14/10 15/1
_	Mr. Bote Sushant Suresh	The state of the s
2	Miss. Deshmukhe Aishwarya D	The state of the s
	Mr. Deshmukh Mahesh Bhauso	The state of the s
7	Mr. Jadhav Amit Ashok	Reductional Rada Radion on Literatural A reduction of reductions of Sales Sales
5	Mr. Jadhav Shivprasad Krishnarao	13/2/8/2/8/2/8/2/8/2/8/2/8/2/8/2/8/2/8/2/
9	Miss. Kadam Ketaki Vasnat	M red Felo Edgliche Fine Chell A
7	Miss Kamble Susmita Chandar	Sandard A Const to the Constant
00	Miss Mandavkar Ruchita Rajendra	The said and all and a said
6	Miss Nirmale Pooja Ashok	Paris Paris Paris Paris Paris Paris
10	Mr. Patil Ashutosh Madukar	AMB AND AND AND AMB AMB AND
	Miss Patil Asmita Anandrao	ASSENTE AND OF A SER BAP BAP
12	Miss Patil Manisha Nanaso	十七十五十五十五十五十五十五十五十五十五十五十五十五十五十五十二十二十二十二十二
13	Mr. Patil Pranit Mohanrao	Amount True Part Porte Pour Tour Pour Tour Tour Court Four Second A 4 to 1
7	Miss Patil Swati Dinkar	というとうというできていまっていまっているとうでです。
15	Miss Patole Anuradha L.	LA LINGUEL A A CANTAL BY BOLD BULL AS LAW LA
91	Miss Phadatare Dhanashri Rajesh	- (2) Kgs Can On Dusten an Par Du purpu an
17	Mr. Sherala Dinesh Naresh	5 mg Start Start Start Some Sand Sand Start Star
81	Miss Shinde Amruta Anandrao	からので
61	Mr. Tamboli Asif Jahangir	いることのなった。本人は大きないというという
20	Miss Tamke Vaishanavi Namdeo	WENT THE TANK OF THE PARTY OF T
21	Mr. Bandgar Vishwambar Subhash	48
22	Miss. Chavan Jayashri Madhukar	Mad to Santo That A My S. A. King The
23	Miss. Digraje Ankita Ravindra	But A dam ( but
24	Mr. Gadekar Mahesh Madhav	Rober Mary Met Make Mail
25	Miss. Jadhav Arati Kumar	Le and Studies
26	Miss. Jadhav Dhanashri Chandrakant	DI-107-109-109-109-109-10-100-100-100-100-100-
27	Miss. Jadhav Pooja Sadanand	₩ 4 A
28	Miss Kadam Priyanka Jitendra	and a sold of the season of the season of the

29 Mr. Kesarkar Vinayak Baburao 30 Miss. Kumbhar Shraddha Sanjay	onrao		4	0	)	5	6)	6)	13/3	() ().				2	2
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31 MISS. Mudhale Mayuri Ashok		Se Tour	是一	Tought of	E LE	THE STATE OF THE S	是是	Christ I	Parties of the same of the sam	690	T	4	4	<	4
32 Miss. Nadaf Anisa Ajij			40	14	10	d	10	Ia	10	A	4	8	K	d	
33 Miss. Patil Priyanka Gundoji		South Part	子が出る	رين	1400	4	रवन्द	き	K	d	- Both	4	一年シス	4	LK
34 Miss. Patil Sayali Jayasing		2	4	THUS	Fr. A	五	They	To Ca	74.4	I	X	4	E	July 1	F
35 Miss. Patil Shital Vilas		Son! Sch	1	K	بح	F	4	Has	<	TH'S	一手好	FIS	FICE	Ł	0
36 Miss. Patil Shivani Prakash		ないまな	なって	艺	Ta Ca	THE WAY	Ł	4	<	- La	K	HX	4	30	4
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38 Miss. Salunkhe Samruddhi Shrikant	Shrikant	F	4	8	d	4	2	F	2	6	L	0	2		
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#### "Education for Knowledge, Science and Culture"

#### -Shikshanmaharshi Dr. Hapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha, Kolhapur

#### Vivekanand College, Kolhapur (Autonomous) Department of Physics

#### Add On Course Examination

Basic Instrumentation course in physics			
Date: 4/02/2020			Total Marks: 20
Time: 10.30 am to	11.30 am		
Student's Sign:			
Jr. Supervisor Sig	gn:		
Q.1) Select corre	ct alternative		(20)
1) Least count of Ver	nier caliper		, ,
a) 0.001cm	b) 0.01cm	c) 0.0001cm	d)1cm
2) Ditch of mine		1.7	
2) Pitch of micromete a) least count	er screw gauge is		on on micrometer scale
	ion on main scale		on on micrometer scale
e) smallest divis	ion on main scare	d) none of these	
3) 100cm=	mm		
a)10	b)1000	c)100000	d)1*10 <sup>4</sup>
Transit Ir. In 15			
4) The image formed		-	1
a) horizontal	b) inv	verted c)vertical	d) tilted by 45°
5) The angles of big	orism are	0	
a)60-60-60		c)179-0.5-0.5	d)60-30-90
	,		2,010
6) Condition for cor	strictive interfere	ence is	
a)n\lambda	b)(n+1) $\frac{\lambda}{2}$	c) $(n-1)^{\frac{\lambda}{n}}$	d) $(2n-1)\frac{\lambda}{2}$
		2	2
7) In Fresnel's bipris	m experiment, w	avelength of given mono	chromatic light is given
by			
a) $\lambda = \frac{xd}{R}$	b) $\lambda = \frac{D}{\lambda}$	c) $\lambda = \frac{-xD}{d}$	d) $\lambda = \frac{D}{xD}$
D	xa	d	хD
8) Unit of figure me	rit of ballistic gal	vanometer is	
a) µm/A	b) μA/mV	c)A/µm	d)V
9) Ballistic galvanor	neter is		
a) Astatic galvano		b)Dead beat Galonome	
c) Tangent galvar	ometer	d) Moving coil Galono	meter
			ESTD 13
			( ) ( ) ( ) ( )

10) Voltmeter car a) parallel	b) series	necting resistance c)vertically	in w d) both in s	ith galvanometer. series and parallel	
11) Current meter a) parallel	can be formed by b) series	connecting resist	ance in d) both in se	with galvanomete eries and parallel	r.
12) In ballistic ga a) Phosphor Br	alvanometer, coppe onze b) copper	er wire is suspend c) iron	ed between o	electromagnet by d) steel	thread.
13) Sextant instru a) Current c)Moment of		to measure b) acceleration du d) height of buildi	e to gravity		
14) 1nm = a)10 <sup>-9</sup>	m b) 10 <sup>-11</sup>	c) 10 <sup>-6</sup>	d	)10 <sup>-8</sup>	
15) Wavelength of a) $\lambda = 5896 \text{ A}^0$	of sodium source b) 6896		<sup>7</sup> 896 A <sup>0</sup>	d) 8896 A <sup>0</sup>	
16) In optical spe a) 30	ctrometer, 1 <sup>0</sup> =	min.	d) 90		
17.) Diameter of a) meter scale c)Micrometer s	capillary tube is mo	b)Verni	 er Caliper elling Micror	meter	
<ul><li>a) current in m</li><li>b) voltage in n</li></ul>	nicro ampere requi d to consume one r	ed to consume on red to consume on	e millimeter e millimeter	deflection on a scale deflection on a scale	2
	or resistance 1500± n Orange Silver Orange Silver		n Orange Silveen Red Silv	ver ver	
20) Color code "3 a) 15K±5% b)	Yellow Violet Oran 33K±5% c) 47K=	nge Gold" is for ±5% d) 15K±10	resistano	ce	





#### Seat No.

### "Education for Knowledge, Science and Culture" -Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha, Kolhapur

#### Vivekanand College, Kolhapur (Autonomous)

## Department of Physics Add On Course Examination

		On Course Examination		
Basic Instrumentation course in physics				
1	Date: 4/02/2020		Total Marks: 2	0
-	Time: 10.30 am to 11.30 am			
9	Student's Name : .Shraddh	a Dinkar Jadhau		
5	Student's Sign:	<u></u>		
	Ir. Supervisor Sign:			
	0.1) Select correct alternativ	'e	(20	)
	Least count of Vernier caliper			
	Least count of Vernier caliper a) 0.001cm b) 0.01cm	c) 0.0001cm	d)1cm	
	2) Pitch of micrometer screw gauge a) least count c) smallest division on main sca	by smallest division of	n micrometer scale	
	a)10 b)1000	<b>\(\sigma\)</b> 100000	d)1*10 <sup>4</sup>	
	The image formed by travelling n     a) horizontal	nicroscope is nverted c)vertical	d) tilted by 45 <sup>0</sup>	
X	5) The angles of biprism are a)60-60-60 b)45-45-90	<sup>0</sup> c)179-0.5-0.5	d)60-30-90	
	Condition for constrictive interferance $b$ ) $(n+1)\frac{\lambda}{2}$	erence is c) $(n-1)\frac{\lambda}{2}$	d) $(2n-1)\frac{\lambda}{2}$	
	7) In Fresnel's biprism experiment, by		eatic light is given $d) \lambda = \frac{D}{xD}$	
/	8) Unit of figure merit of ballistic ga a) μm/A b) μA/mV		d)V	
X	9) Ballistic galvanometer is a) Astatic galvanometer c) Tangent galvanometer	<ul><li>b)Dead beat Galonometer</li><li>d) Moving coil Galonometer</li></ul>	ESTD JUNE	0

a) parallel	b) series	ecting resistance in vertically d	both in series	lvanometer. and parallel
1) Current meter c a) parallel	an be formed by co	onnecting resistance vertically d)	e in with	h galvanometer. and parallel
12) In ballistic galv a) Phosphor Bron	vanometer, copper nze b/copper	wire is suspended c) iron	between electro	omagnet by thread.
a) Current c)Moment of in	b)	measure	to gravity	
14) lnm =	m b) 10 <sup>-11</sup>	c) 10 <sup>-6</sup>	d)10 <sup>-8</sup>	
15) Wavelength of $\lambda = 5896 \text{ A}^0$	sodium source b) 6896 A	 o c) 78°	96 A <sup>0</sup> d) 8	8896 A <sup>0</sup>
16) In optical spect a) 30	rometer, 1 <sup>0</sup> =	min.	d) 90	
a) meter scale c)Micrometer sc		(b)Vernier	Caliper ling Micromete	er
o) voltage in mi	ero ampere require ero ampere require to consume one m	ed to consume one ed to consume one	millimeter defl millimeter def	ection on a scale lection on a scale
Color code for Brown Brown c) Brown Red Or		b) Red Green		
20/Color code "Ye a) 15K±5% b) 3:	ellow Violet Oran 3K±5% c 47K±			





#### Seat No.

## "Education for Knowledge, Science and Culture" -Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha, Kolhapur

# Vivekanand College, Kolhapur (Autonomous) Department of Physics Add On Course Examination

Rasic Instrumentation course in physics

	Basic Instru	mentation course	in physics	. 20
Date: 4/02/2020			Total Mar	ks: 20
Time:10.30 am t	to 11.30 am			
		y prakash. Benake	)	
		2		
Q.1) Select corr				(20)
. Deast count of Ve	ernier calinar			(20)
(1) Least count of Ve	b) 0.01cm	a) 0.0001cm	d)1cm	
(D) 0.001cm	0) 0.01cm	c) 0.0001cm	djiciii	
2 Pitch of microme	ter screw gauge is	defined as		
a) least count	0 0		ion on micrometer scale	
c) smallest divi	ision on main scal	e d) none of these		
2/100				
3/100cm=				
a)10	b)1000	Le)+00000	$d)1*10^4$	
The image forme	d by travelling mi	orogoons is		
a) horizontal	in Min	verted c)vertical	1) .:1. 11 450	
			d) tilted by 45°	
The angles of bi	prism are	0		
a)60-60-60	b)45-45-90	c)179-0.5-0.5	d)60-30-90	
			<b>u</b> )00-30-90	
(Condition for co	nstrictive interfere	ence is		
a)ni	b)(n+1) $\frac{\lambda}{2}$	c) $(n-1)^{\frac{\lambda}{n}}$	d) $(2n-1)\frac{\lambda}{2}$	
	~	2	4	
In Fresnel's bipris	sm experiment, wa	avelength of given monoc	promotio light in t	
by		gas as gas on monoc	momatic light is given	
$\lambda = \frac{xa}{D}$	b) $\lambda = \frac{D}{\lambda}$	c) $\lambda = \frac{-xD}{}$	1, 2 D	
	xd	d	d) $\lambda = \frac{D}{xD}$	
8) Unit of figure me	rit of ballistic gal	Vanometer is		
a) µm/A	b) μA/mV	c)A/µm	7.47	
		<i>C)Α</i> νμιιι	d)V	
(9) Ballistic galvanor	meter is			
a) Astatic galvano	ometer	b)Dead beat Galonomete	COLLEGE L	
c) Tangent galvan	ometer	d) Moving coil Galonom	eter (SCOULDE 40)	
			TESTD 13	

a) parallel b) series e)verting	g resistance in with galvanometer. cally d) both in series and parallel
Current meter can be formed by conne a) parallel b) series c)verti-	cting resistance in with galvanometer. cally d) both in series and parallel
In ballistic galvanometer, copper wire a) Phosphor Bronze (b) copper	is suspended between electromagnet by thread c) iron d) steel
Sextant instrument can be used to mean a) Current b) access c) Moment of inertia	leration due to gravity
14) $lnm =m$ b) $10^{-9}$ b) $10^{-11}$ c)	10 <sup>-6</sup> d)10 <sup>-8</sup>
Wavelength of sodium source (a) $\lambda = 5896 \text{ A}^0$ b) $6896 \text{ A}^0$	c) 7896 A <sup>0</sup> d) 8896 A <sup>0</sup>
In optical spectrometer, $1^0 = \dots$ a) 30 b) 60 c)	
Diameter of capillary tube is measured a) meter scale c)Micrometer screw gauge	Husing  b)Vernier Caliper d) Travelling Micrometer
a) current sensitivity of ballistic galvanor a) current in micro ampere required to c b) voltage in micro ampere required to c c) time required to consume one millime d) Both (a) and (b)	onsume one millimeter deflection on a scale consume one millimeter deflection on a scale
	Red Green Orange Silver ) Brown Green Red Silver
20) Color code "Yellow Violet Orange Go a) 15K±5% b) 33K±5% c) 47K±5%	d" is for resistance d) 15K±10%





Shri Swami Vivekanand Shikshan Sanstha, Kolhapur

#### Vivekanand College, Kolhapur (Autonomous) **Department of Physics**

#### Add On Course Examination

	Basic Instrumentation course in	physics	
Date: 4/02/2020		Total Marks:	2

Basic	Instrume	entation course in pl	<b>1ysics</b>	
Date: 4/02/2020			Total Marks: 20	
Time: 10.30 am to 11.3	0 am			
Time: 10.30 am to 11.3 Student's Name: Au	needly gar	da Magduni		
Student's Sign:	Magnus	0		
Jr. Supervisor Sign:				
Q.1) Select correct al			(2	0)
Heast count of Vernier c				
	0.01cm		d)1cm	
21 Pitch of micrometer scre	ew gauge is de	fined as		
a) least count		b) smallest division o	n micrometer scale	
c) smallest division of	n main scale	d) none of these		
3) 100cm=mm				
/ / / /	1000	1100000	1)1*104	

√ 3) 100cm=	mm		
7 10	b)1000	c)100000	$d)1*10^4$

4) The image formed by travelling microscope is .......

d) tilted by 45° brinverted a) horizontal c)vertical The angles of biprism are ......... c)179-0.5-0.5 b)45-45-90 d)60-30-90 a)60-60-60

6) Condition for constrictive interference is ....... b)(n+1) $\frac{\lambda}{2}$  c) (n-1) $\frac{\lambda}{2}$ d)  $(2n-1)\frac{\lambda}{2}$ 

In Fresnel's biprism experiment, wavelength of given monochromatic light is given b)  $\lambda = \frac{D}{xd}$  c)  $\lambda = \frac{-xD}{d}$  d)  $\lambda = \frac{D}{xD}$ 

8) Unit of figure merit of ballistic galvanometer is ........ c)A/µm b/µA/mV d)V a) µm/A

9) Ballistic galvanometer is ...... (b)Dead beat Galonometer a) Astatic galvanometer

d) Moving coil Galonometer c) Tangent galvanometer



	10) Voltmeter can be formed by connecting resistance in with galvanometer.  a) parallel b) series c)vertically d) both in series and parallel
	11) Current meter can be formed by connecting resistance in with galvanometer.  a) parallel by series c)vertically d) both in series and parallel
	12) In ballistic galvanometer, copper wire is suspended between electromagnet by thread a) Phosphor Bronze by copper c) iron d) steel
	a) Current b) acceleration due to gravity c) Moment of inertia d) height of building
	14) $lnm =m$ $a)10^{-9}$ b) $10^{-11}$ c) $10^{-6}$ d) $10^{-8}$
/	15) Wavelength of sodium source
/	16) In optical spectrometer, $1^0 =min$ .  a) 30 b) 60 c) 45 d) 90
/	a) meter scale c)Micrometer screw gauge  17.) Diameter of capillary tube is measured using b)Vernier Caliper d) Travelling Micrometer
/	a) current in micro ampere required to consume one millimeter deflection on a scale b) voltage in micro ampere required to consume one millimeter deflection on a scale c) time required to consume one millimeter deflection on a scale d) Both (a) and (b)
/	19) Color code for resistance 1500± 10% is  a) Brown Brown Orange Silver b) Red Green Orange Silver c) Brown Red Orange Silver d) Brown Green Red Silver
/	20) Color code "Yellow Violet Orange Gold" is for resistance a) 15K±5% b) 33K±5% a) 47K±5% d) 15K±10%



#### Seat No.

#### "Education for Knowledge, Science and Culture" -Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha, Kolhapur

#### Vivekanand College, Kolhapur (Autonomous) **Department of Physics**

Add On Course Examination

	Basic Instrui	nentation course in	physics
Date: 4/02/2020  Basic Instrumentation course in physics  Total Marks: 20			Total Marks: 20
Time: 10.30 am to	Time: 10.30 am to 11.30 am		
Student's Name:	Sough!	Mahadev kadam	
Student's Sign:	Dan-		
or supervisor Si	gn:		
1) Least count of Ver	ct alternative		(20)
			d)1cm
Pitch of micrometer     a) least count     c) smallest divis	er screw gauge is sion on main scale	h)cmallest division	on on micrometer scale
3) 100cm=	mm		
a)10	b)1000	C)100000	d)1*10 <sup>4</sup>
The image formed     a) horizontal	l by travelling mi ران طل	croscope isverted c)vertical	d) tilted by 45°
5) The angles of big 2)60-60-60	b)45-45-90	c)179-0.5-0.5	d)60-30-90
6) Condition for con-	strictive interfere	ence is	
a)nλ	b)(n+1) $\frac{\lambda}{2}$	c) $(n-1)\frac{\lambda}{2}$	d) $(2n-1)\frac{\lambda}{2}$
DV	m experiment, wa	avelength of given monoc	hromatic light is given
	b) $\lambda = \frac{D}{xd}$	c) $\lambda = \frac{-xD}{d}$	d) $\lambda = \frac{D}{xD}$
8) Unit of figure mer a) μm/A	rit of ballistic gal- ψ μΑ/mV	vanometer is c)A/μm	d)V
9) Ballistic galvanon a) Astatic galvano c) Tangent galvano	meter	b)Dead beat Galonomet d) Moving coil Galonomet	

a) parallel b) series exertically d) both in series and parallel	
(1) Current meter can be formed by connecting resistance in with galvanometer.  a) parallel by series e)vertically d) both in series and parallel	
12) In ballistic galvanometer, copper wire is suspended between electromagnet by thread a) Phosphor Bronze by copper e) iron d) steel	١.
a) Current b) acceleration due to gravity c)Moment of inertia b) height of building	
$\frac{14) \text{ lnm} = \dots m}{b) 10^{-11}} $ c) $10^{-6}$ d) $10^{-8}$	
15) Wavelength of sodium source	
16) In optical spectrometer, $1^0 =min$ .  (a) 30 (b) 60 (c) 45 (d) 90	
a) meter scale c)Micrometer screw gauge  17. Diameter of capillary tube is measured using a) meter scale c)Micrometer screw gauge  d) Travelling Micrometer	
18. Current sensitivity of ballistic galvanometer is define as  a) current in micro ampere required to consume one millimeter deflection on a scale b) voltage in micro ampere required to consume one millimeter deflection on a scale c) time required to consume one millimeter deflection on a scale d) Both (a) and (b)	
(19) Color code for resistance 1500± 10% is  Brown Brown Orange Silver  b) Red Green Orange Silver  c) Brown Red Orange Silver  d) Brown Green Red Silver	
(20) Color code "Yellow Violet Orange Gold" is for resistance a) 15K±5% b) 33K±5% c/ 47K±5% d) 15K±10%	



Shri Swami Vivekanand Shikshan Sanstha's Vivekanand College (Autonomous), Kolhapur. Basic Instrumentation Course in Physics 2019-2020 Result

Date: 04/02/2020

Sr. No.	Name of the student	Marks obtained (out of 20)	Result
1	Miss. Benake Ragini Jayprakash	20	Pass
2	Miss. Bhatnare Shivani Sanjay	15	Pass
3	Miss. Dhavale Swarupa Baburao	14	Pass
4	Miss. Dingane Sandhya sudhakar	13	Pass
5	Miss. Jadhav Pratiksha Harish	15	Pass
6	Miss. Jadhav Shraddha Dinkar	18	Pass
7	Miss. Jagadale Manasi Khanderao	17	Pass
8	Miss. Josef Susen Livis	20	Pass
9	Miss. Koshti Shweta Jitendra	20	Pass
10	Miss. Kulkarni Manasi Vinayak	15	Pass
11	Miss. Lohar Neha Shankar	20	Pass
12	Miss. Magdum Samruddhi Gunda	19	Pass
13	Miss. Methe Kishori Prakash	19	Pass
14	Miss. Mohite Tanvi Vikas	14	Pass
15	Miss. More Akshada Vijay	13	Pass
16	Miss. Mudekar Rutuja Ramchandra	12	Pass
17	Miss. Nalavade Ankita Amar	15	Pass
18	Miss. Nirmale Sakshi Sunil	15	Pass
19	Miss. Patil Amruta Bhujgonda	14	Pass
20	Miss. Patil Kirti Vijay	14	Pass
21	Miss. Patil Sujata Anandrao	12	Pass
22	Miss. Patil Sunita Ashok.	13	Pass
23	Miss. Potdar Aishwarya Sharad	13	Pass
24	Miss. Sawant Shreya Gopal	15	Pass
25	Miss. Shinde Radhika Baburao	20	Pass
26	Miss. Shinde Swaranjali Sankay	20	Pass
27	Miss. Sutar Vaishnavi Suresh	19	Pass
28	Miss. Zingare Yogita vishnu	19	Pass
29	Mr. Chougule Abhijeet Bajiraw	18	Pass
30	Mr. Dalvi Tejas Chetan	17	Pass
31	Mr. Gaikwad Suraj Dhananjay	20	Pass
32	Mr. Ghatage Sourabh Vijay	19	Pass
33	Mr. Ghosalkar Pranav Shankar	20	Pass
34	Mr. Kadam Sourabh Mahadey	20	
35	Mr. Kamble Abhishek Pandhurang	14	Pass
		14	Pass



36	Mr. Kamble Prasad V.	15	Pass
37	Mr. Killedar Yogiraj Rajendra	16	Pass
38	Mr. Kotale Sujit Dinkar	12	Pass
39	Mr. Kumbhar Jaywant R.	14	Pass
40	Mr. Kumbhar Prathmesh M.	20	Pass
41	Mr. Paranjape Anish Shriram	20	Pass
42	Mr. Sabale Abhishek Dattatray	20	Pass
43	Mr. Savant Rohit Ramchandra	19	Pass
44	Mr. Sutar Pravin Rajendra	18	Pass
45	Mr. Thanekar Vaibhay Mahendra	17	Pass
46	Mr. Tibile Rohan Arjun	12	Pass



Head

Department of Physics

DEPARTMENT OF PHYSICS
VIVEKANAND COLLEGE KULMPUR
(AUTONOMOUS)



Shri Swami Vivekanand Shikshan Sanstha's



2130/E, Tarabai Park,
Kolhapur (Maharashtra)

Reaccredited with 'A' Grade by NAAC

College with Potential for Excellence by UGC B.Voc. and Community College **DBT Star College Scheme** 

**Department of Physics** 

# Certificate ?

This is to certify th	hat Mr./Ms. Methe Kishori Prakash
class	
INSTRUMENT	TATION IN PHYSICS" Conducted by the Department of
Physics during	2019-2020 academic Year.

Course-ordinator



Shri Swami Vivekanand Shikshan Sanstha's



2130/E, Tarabai Park,
Kolhapur (Maharashtra)

Reaccredited with 'A' Grade by NAAC
College with Potential for Excellence by UGC

B.Voc. and Community College **DBT Star College Scheme** 

## Department of Physics

# Certificate ?

This is to certify that Mr./Ms. Josef Swen Livis
classhas Completed the Add on \COC Course in "BASIC
INSTRUMENTATION IN PHYSICS" Conducted by the Department of
Physics during 2019-2020 academic Year.

Course-ordinator





Shri Swami Vivekanand Shikshan Sanstha's



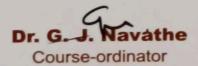
B.Voc. and Community College **DBT Star College Scheme** 

College with Potential for Excellence by UGC

## **Department of Physics**

# Certificate 3

This is to certify	that Mr./Ms]	Patil Kirti Vijay
class	has (	Completed the Add on \COC Course in "BASIC
INSTRUMEN	TATION IN P	HYSICS" Conducted by the Department of
Physics during	2019-2020	academic Year.







Shri Swami Vivekanand Shikshan Sanstha's



WEKANAND 2130/E, Tarabai Park, Kolhapur (Maharashtra)

COLLEGE, KOLHAPUP Reaccredited with 'A' Grade by NAAC College with Potential for Excellence by UGC B.Voc. and Community College **DBT Star College Scheme** 

## Department of Physics

# Certificate ?

This is to certify that Mr./Ms. Mudekar Rulija Ramchandra
class
INSTRUMENTATION IN PHYSICS" Conducted by the Department of
Physics during 2019-2020 academic Year.



Course-ordinator