Andhra Christian college
GUNTUR
DEPARTMENT OF PHYSICS

Date: 26-07-2018

NOTICE

It is Notified for All concerned that Andhra Christian College, Guntur, is going to start a Certificate course on "**LED BULB ASSEMBLING, USAGE & APPLICATIONS**"very soon for 1st B.Sc, 2nd B.Sc& 3rd B.Sc students for their benefits in the near future.

The last date of enrolment is: 31st July,2018

Course Coordinator:**Dr. M. Ratna Raju**, Lecturer, Department of Physics

Note:

1. The course is free of cost and the successful candidates will be issued certificates by college which will help them in future.
2. Admission is on First come First Serve Basis. Number of seats is limited.

Head of the Department
(Department of physics)

Department of Physics
A.C College, Guntur.

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Andhra Christian College
Principal

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GUNTUR.

CERTIFICATE COURSE 2018-19

Department Conducts a Certificate course on "LED BULB ASSEMBLING, USAGE AND APPLICATIONS". The Duration of the Course is 30 hours. This course will provide the students an idea of basics of LED bulbs and practical sessions on assembling and service of LED bulbs.

SYLLABUS

MODULE I — 10 hours

Diodes- basic concepts, Biasing-forward bias and reverse bias, Introduction to LEDs, Semiconductor LEDs- How do they Work, LED's basic theory, LED Voltage Voltage and current, Advantages and disadvantages of LED

MODULE II — 10hours

Multicolour LEDs, White LED, Physics of White LED, White LED no heat, Blue LED- History of Revolutions, LEDs Lighting and Potential for energy savings, Applications of LEDs- Power indicator, seven segment display, why LED lights so good, Organic LEDs

MODULE III – Practical Session — 10 hours

How to assemble LEDbulbs,Discussion of the circuits , Fabrication of the LED bulbs

Text book for study

1. Principles of Electronics- V.K Metha- S . Chand Publication
2. Principles and Applications of Organic Light Emitting Diodes (OLEDs) Thejo Kalyani, Hendrik Swart and S.J. Dhoble-Wiley Publication
3. Understanding LED Illumination – M. Nisa Khan
4. Integrated Electronics- Jacob Millman,Christos Halkias ,Chetan D. Parikh- second edition

contact@mtcc.ac.in

Andhra Christian College, Guntur

Department of Physics

List of Students Attended for the Add-on Course

Date: 01-05-2018 to 15-05-2018

Class: I, II, and III B. Sc (M. P.C. and M. P. Cs)

S. No.	Class No	Name of the Students	Class	Signature
1.	601	V. Prakash	Ist B.Sc	V. Prakash
2.	621	R. Ravi Kiran	Ist B.Sc	R. Ravi Kiran
3.	634	D. Yakobu	Ist B.Sc	D. yakobu
4.	639	E. Mohan Krishna	Ist B.Sc	E. Mohan Krishna
5.	645	L. Jeeva Mani	Ist B.Sc	L. Jeeva Mani
6.	1404	B. Charan Varma	Ist B.Sc	B. charan varma
7.	1409	N. Venkateswarlu	Ist B.Sc	N. Venkateswarlu
8.	601	T. Divya Bharathi	IInd B.Sc	T. Divya Bharathi
9.	604	M. Anusha	IInd B.Sc	M. Anusha
10.	605	K. Sai babu	IInd BSc	K. Sai babu
11.	628	P. Joji Babu	IInd BSc	P. Joji Babu
12.	643	T. Mani Raj	IInd B.Sc	T. mani Raj
13.	602	K. Bangara Rani	IIIrd B.Sc	K. Bangara Rani
14.	665	E. Thivikram	IIIrd B.Sc	E. thrivikram
15.	619	R. Vamsi	IIIrd BSc	R. Vamsi
16.	626	B. mahesh Babu	IIIrd B.Sc	B. maheshBabu
17.	631	D. Raj meena	IIIrd B.Sc	D. Raj Meena
18.	636	D. Babu Rao	IIIrd B.Sc	D. Babu Rao
19.	640	D. NagaBabu	IIIrd B.Sc	D. Nagababu.
20.	642	P. Arun Kumar	IIIrd B.Sc	P. Arun kumar

Department of Physics
A.C. College, Guntur.

Andhra Christian college

Guntur

ADD-ON CERTIFICATE COURSE

DEPARMENT OF PHYSICS

ATTENDANCE REPORT

Academic year: 2018-19

Timings: 3:00 PM to 5:00 PMTotal hours:30 hours

S.No	Class No	Name of the student	1 8/12	2 8/12	3 8/12	4 8/12	6 8/12	7 8/12	8 8/12	9 8/12	10 8/12	11 8/12	13 8/12	14 8/12	16 8/12	17 8/12	18 8/12
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1st B.Sc																	
1	614	V.Prakash	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
2	621	R.Ravi kiran	P	P	P	P	P	P	P	P	P	P	P	OD	OD	P	P
3	634	D.Yakobu	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
4	639	E.Mohan krishna	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
5	645	L.Jeeva mani	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
6	1404	B.Charan varma	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
7	1409	N.Venkateswarlu	P	P	P	P	P	P	P	P	P	P	P	OD	OD	P	P
2nd B.Sc																	
8	601	T.Divya Bharathi	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P
9	604	M.Anusha	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
10	608	K.Saibabu	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P
11	629	P.Joji babu	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P
12	643	T.Mani Raj	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
3rd B.Sc																	
13	602	K.Bangaru Rani	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P
14	615	E.Trivikram	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
15	619	R.Vamsi	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P
16	626	B.Mahesh Babu	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P
17	631	D.Raj meena	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P
18	636	D.Babu rao	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
19	640	D.Naga babu	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P
20	642	P. Arun Kumar	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

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DEPARTMENT OF PHYSICS

Academic Year 2018 - 19

Time:

TOPIC - LIGHT EMITTING DIODE

Max Marks : 20 M

Time : 1hour

Answer all Questions. Each question carries **ONE** marks

1. In LEDs, light is emitted when _____.

   a. Electrons recombine with electrons
   b. Electrons recombine with holes
   c. Electrons do not recombine
   d. None of the above

2. Which of the following produce the current when it absorbs photons?

   a. Transducer
   b. LED
   c. Photodiode
   d. LCD

3. LEDs work on the principle of _____.

   a. Electromagnetic induction
   b. Conduction
   c. Electroluminescence
   d. Induction

4. State true or false: High warm-up time is needed for LEDs.

   a. TRUE
   b. FALSE

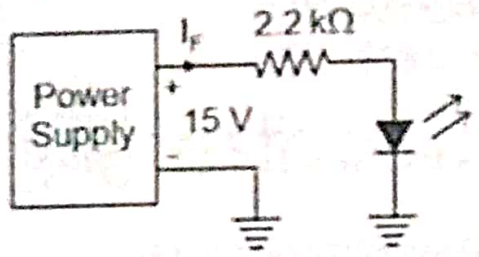
5. In local dimming, LEDs are dimmed _____.

   a. Together
   b. Independently

6. Aluminium alloys are used to obtain _____ light.

   a. Red
   b. Orange
   c. Yellow
   d. All of the above

7. What is the current passing through the led in the following circuit, assuming it has a voltage drop of 2V?



a. 5.91 mA
b. 8.72 mA
c. 3.72 mA
d. 5.27 mA

8. A light-emmiting diode(LED) converts:
   a. Optical signal into thermal energy
   b. Thermal energy into electrical energy
   c. Electrical current into optical signal
   d. Sound energy into optical signal

9. What value of a series resistor is required to limit the current through an LED to 20 mA with a forward voltage drop of 2.0 V, when connected to a 10-V supply
   a. 600 Ω
   b. 200 Ω
   c. 800 Ω
   d. 400 Ω

10. If the speed of light in air is represented by e and the speed in a medium is u, then the refractive index of the medium can be calculated using the formula _____.
   a. u/e
   b. e/u
   c. e/(2.u)
   d. (e-u)/e

11. If a RED/ GREEN multi color LED is switched fast enough between two polarities, it will produce _____ colour.
   a. Green
   b. Orange
   c. Red
   d. Yellow

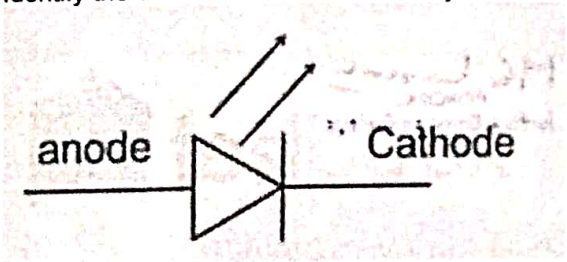
12. Which of the following statements about LED is InCorrect?
    a. It needs small power for operation
    b. It emits light
    c. It uses materials like gallium and arsenide
    d. It uses materials like silicon and germanium

13. Red (R), Green (G) and Blue (B) Light Emitting Diodes (LEDs) were fabricated using p-n junctions of three different inorganic semiconductors having different band-gaps. The built-in voltages of red, green and blue diodes are V_R, V_G and V_B, respectively. Assume donor and acceptor doping to be the same (N_A and N_D, respectively) in the p and n sides of all the three diodes.Which one of the following relationships about the built-in voltages is TRUE?
    a. $V_R > V_G > V_B$
    b. $V_R < V_G < V_B$
    c. $V_R = V_G = V_B$
    d. $V_R > V_G < V_B$

14. The basic material for fabrication of an LED is
    a. gallium arsenide
    b. gallium arsenide phosphide
    c. indium antimonide
    d. indium antimonide phosphide

15. Which of the following semiconductor compound is not used in the construction of Light Emitting Diodes?
    a. GaAs
    b. GaP
    c. GaSe
    d. GaN

16. Identify the diode for which the above symbol is used.



    a. Varactor diode
    b. Light emitting diode
    c. Photo diode
    d. Blocking diode

17. An LED has a rating of 2 V and 10 mA. If it is connected to a 6V battery, the minimum value of series resistance is
    a. 40 Ω
    b. 100 Ω
    c. 200 Ω
    d. 400 Ω

18. The color of the emitted light from the P-N junction made of GaAsP is
    a. red or yellow.
    b. far infrared.
    c. near infrared.
    d. ultraviolet.

19. RGB LED consists of _____ LED.
    a. Two red, one green and one blue
    b. One red, two green and one brown
    c. One red, one green and one blue
    d. two red, two green and two blue

20. As compared to an LED, an LCD has the distinct advantage of
    a. Extremely low power consumption
    b. Providing a silver display
    c. Being extremely thin
    d. Giving two types of displays

1-b, 2-c, 3-c, 4-b, 5-b, 6-d, 7-a, 8-c, 9-d, 10-b,11-d, 12-d, 13-b, 14-a, 15-c, 16-b, 17-d, 18-a, 19-c, 20-a

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Physics
Department of Physics
A.C. College, Guntur.

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ADD-ON CERTIFICATE COURSE

DEPARMENT OF PHYSICS

ATTENDANCE REPORT

COURSE NAME LED Bulb Assembling usage and Applicatin 1.

Academic year: 2018- 2019

Timings: 3:00 PM to 5:00 PM

Total hours:30 hours

S.NO	C L NO	NAME OF THE STUDENT	CLASS	Day-1 (1 8/18)	Day-2 (2 8/18)	Day-3 (3 8/18)	Day-4 (4 8/18)	Day-5 (6 8/18)	Day-6 (7 8/18)	Day-7 (8 8/18)	Day-8 (9 8/18)	Day-9 (10 8/18)	Day-10 (11 8/18)	Day-11 (12 8/18)	Day-12 (13 8/18)	Day-13 (16 8/18)	Day-14 (17 8/18)	Day-15 (18 8/18)	Sign of Student
1	904	S. Pavan kumar	III Bsc	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	S. Pavan kumar
2	905	M. Daniel Billy Vijaya	III Bsc	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	M. Daniel Billy Vijaya
3	906	M. Praveen	III Bsc	X	X	X	A	X	X	X	X	X	X	X	X	X	X	X	M. Praveen
4	907	J. Nireekshana Rao	III Bsc	X	X	X	X	X	X	A	X	X	X	X	X	X	X	X	J. Nireekshana Rao
5	908	K. Samuel prakash	III Bsc	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	K. Samuel Prakash
6	909	K. Ravi Teja	III Bsc	X	X	X	X	X	X	X	X	A	X	X	X	X	X	X	K. Ravi Teja
7	910	K. prasanna kumar	III Bsc	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	K. prasanna kumar
8	911	D. Bhimla Naik	"	X	X	A	X	X	X	X	X	X	X	A	X	X	X	X	D. Bhimla Naik
9	912	S. Venkatesh	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	S. Venkatesh
10	913	M. Mahana Siva Mudi	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	M. Mahana Siva Mudi
11	914	K. Sunil.	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	K. Sunil

12	915	Vamsi	III BSc	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Vamsi
13	916	K. Renudeepa	"	X	A	X	X	A	X	X	X	X	X	X	X	X	X	X	K. Renudeepa
14	917	P. pavan kumar	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P. pavan kuma
15	918	Nagendra Naik.	"	X	X	X	X	A	X	X	X	X	X	X	X	X	X	X	Nagendra Na
16	919	B. Srinath	"	X	X	X	X	X	X	X	X	X	X	A	X	X	X	X	B. Srinath
17	920	K. koteswara Rao	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	K. koteswara Ra
18	921	L. Anand	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	L. Anand
19	922	L. sunil kumar	"	X	X	X	X	X	X	X	X	A	X	X	X	X	X	X	L. sunil kuma
20	923	ch. Anand	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Ch. Anand
21	924	R. Narasimha Naik	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	R. Narasimha
22	925	M. Mridula	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	M. Mridula
23	928	P. Jaya Lakshmi	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P. Jaya Lakshi
24	929	K. Durgabai	"	X	X	X	X	A	X	X	X	X	X	X	X	X	X	X	K. Durgabai
25	930	K. Suvarna Rani	"	X	X	X	X	X	X	A	X	X	X	X	X	X	X	X	K. Suvarna Ra
26	931	B. Naveen Nayak	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	B. Naveen Nay
27	932	B. ASVinash kumar	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	B. Naveen Nay
28	933	D. venkat	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	D. venkat
29	934	M. Venkatarao	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	M. Venkatara
30	935	J. Prasanth	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	J. Prasanth
31	936	P. Hepsiba Rani	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P. Hepsiba Rani
32	937	R. Manjula Rani	"	X	X	X	A	X	X	X	X	X	X	X	X	X	X	X	R. Manjula Rani
33	1401	K. Gayathri	"	X	X	X	X	X	X	A	X	X	X	X	X	X	X	X	K. Gayathri
34	1402	S. Pavan kumar	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	S. Pavan kuma
35	1403	M. Dani Naveen.	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	M. Dani Naveen

36.	1404	J. Venkatesh	III BSc	X	X	X	X	X	A	A	A	A	X	X	X	X	X	X	J. Venkatesh
37	1405	Ch. Vijay Babu	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Ch. Vijay Babu
38	1407	R. sailaja	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	R. sailaja
39	1408	V. Pavan kalyan	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	V. Pavan Kalyan
40	1409	B. Ashok	"	X	X	X	X	X	X	A	X	X	X	X	X	X	X	X	B. Ashok
41	1410	V. Raj kumar	"	X	X	X	X	X	A	X	X	A	X	A	X	X	X	X	V. Raj kumar
42	1411	G. Emmanuel	"	X	X	X	X	X	X	A	X	X	X	X	X	X	X	X	G. Emmanuel
43	1412	P.V.K.K. Basu Babu	"	X	X	X	X	X	X	X	X	X	X	A	A	X	X	X	P.V.K. Basu Babu
44	1413	D. Rajesh	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	D. Rajesh
45	1414	S. Sagar	"	X	X	A	X	X	X	X	A	X	X	X	X	X	X	X	S. Sagar
46	1415	P. Mahesh Babu	"	X	X	X	X	X	X	X	X	X	X	X	X	A	X	X	P. Mahesh Babu
47	1416	K. Nagendra Babu	"	X	X	X	X	X	X	X	X	X	X	X	X	A	X	X	K. Nagendra Babu
48	1417	I. Prasanna	"	X	X	X	X	X	A	A	X	X	X	X	X	X	X	X	I. Prasanna
49	1419	G. H Ymavathi	"	X	X	X	X	X	X	X	X	X	X	A	X	X	X	X	G. H Ymavathi
50	1420	M. Sundar kumar	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	M. Sundar kumar
51	1421	SK. Abdul Rafi	"	X	X	A	X	X	X	X	X	X	X	X	X	X	X	X	SK. Abdul Rafi
52	1422	K. prem Raj Naik	"	X	X	X	A	X	X	X	X	X	X	X	X	X	X	X	K. prem Raj Naik
53	601	T. Divya Bharathi	II BSc	X	X	X	X	X	X	A	X	X	X	X	X	X	X	X	T. Divya Brathi
54	602	Sk. Shakeena	"	X	X	X	X	X	X	X	X	X	A	A	X	X	X	X	SK Shakeena
55	603	D. priya Geeta reddy	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	D. Priyageeta reddy
56	604	M. Anusha	"	X	X	X	X	X	X	X	X	X	X	X	X			X	M. Anusha
57	605	M. Nakshatram	II BSc	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	M. Nakshatram
58	606	D. Kiran Bedi	"	X	X	X	X	A	A	X	X	X	X	X	X	X	X	X	D. Kiran Bedi
59	607	B. Sharoni.	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	B. Sharoni

60	608	K. Saibabu	IIBSc	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	R. Saibabu
61	609	K. Srikanth	IIBSc	X	A	X	X	X	X	X	X	X	X	X	X	X	X	X	K. Srikanth
62	610	K. Siva Sankar	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	K. Siva Sankar
63	611	I. Devasahayam	"	X	X	A	X	X	X	X	A	X	X	X	X	X	X	X	I. Devasahayam
64	612	D. Sunny kumar	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	D. Sunny kumar
65	613	P. Anil	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	P. Anil
66	614	D. prasanth kumar	"	X	X	X	X	X	X	X	X	X	X	X	A	A	X	X	D. Prasanth kumar
67	615	J. Bujji	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	J. Bujji
68	616	D. Satish Babu	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	D. Satish Babu
69	617	G. Siva	"	X	X	X	X	A	A	X	X	X	X	X	X	X	X	X	G. Siva
70	618	T. Bharath	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	T. Bharath
71	619	D. Badri	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	D. Badri
72	620	V. Revanth kumar	"	X	X	X	X	X	X	X	A	X	X	X	X	X	X	X	V. Revanth kumar
73	621	M. Pitchaiah	"	X	X	X	X	X	X	X	X	X	X	X	X	A	X	X	M. Pitchaiah
74	622	D. Nageswara rao	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	D. Nageswara rao
75	623	B. Raju	"	A	A	X	X	X	X	X	X	X	X	X	X	A	X	X	B. Raju
76	625	B. pavankumar	"	X	X	X	X	X	X	X	X	A	A	X	X	X	X	X	B. pavankumar
77	626	K. Ramesh	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A	K. Ramesh
78	629	P. Joji Babu	"	X	X	X	A	A	X	X	X	X	X	X	X	X	X	X	P. Joji Babu
79	630	Ch. Vinod kumar	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Ch. Vinod kumar
80	631	J. Venkateswarlu	"	X	X	X	X	X	X	X	X	X	X	X	A	X	X	X	J. Venkateswarlu
81	632	K. Gopi krishna	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	K. Gopi krishna
82	633	D. Mark Babu	"	X	X	X	X	X	X	X	X	A	A	X	X	X	X	X	D. Mark Babu
83	635	A. Bhanu prakash	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A. Bhanu Prakash

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"Ye shall know the Truth and the Truth shall set you free"

Andhra Christian College, Guntur

(Day, II Shift & P. G.)

Accredited with A-grade by NAAC

Estd. 1885

CERTIFICATE

This is to certify that Mr. / Ms. D. BABU RAO ,

Class IIIYr B.Sc , *Regd. No.* 636 *has participated and successfully completed Certificate Course in LED BULD ASSEMBLING, USAGE AND APPLICATIONS conducted by the Department of Physics from 01-08-2018 to 18-08-2018 and obtained Grade* 17/20 (B)

HOD

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