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SRI MAHAYOGI LAKSHMAMMA GOVERNMENT DEGREE COLLEGE

YEMMIGANUR, KURNOOL DIST.

Affiliated to Rayalaseema University, Kurnool - 518360, A.P.



CERTIFICATE COURSE

ON

Refrigeration Techniques

ORGANISED BY

THE DEPARTMENT OF PHYSICS

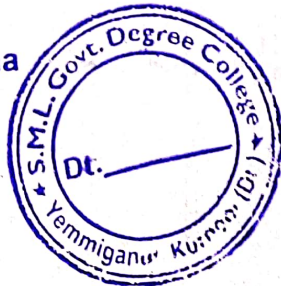
2022-23

FROM 06-05-2023 to 03-07-2023

[Handwritten Signature]

Lecturer in Charge
Incharge

Dept. of Physics
Department of Physics
Sri Mahayogi Lakshamma
Govt. Degree College
Yemmiganur - 518 360,



[Handwritten Signature]

PRINCIPAL

PRINCIPAL

SML Govt. Degree College
YEMMIGANUR, Kurnool



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25-04-2023

Departmental Meeting - 4

A Meeting was held at principal Chamber on 25/04/2023 at 12:00 pm to discuss and resolve the following

- ① To Introduce a certificate course in Refrigeration Techniques for B.E ^{1st year} ~~1st year~~ MPCS students.
- ② It is resolved to conduct Remedial Coaching for B.E students.
- ③ It is also resolved to make a field trip for III-B.E students.

① Dr. G. PAUL DEVADANAM **Incharge**
 Hc Dept. of physics **Dept. of Physics**
Sri Mahayogi Lakshamma
Govt. Degree College
 Yemmiganur - 518 360

② Sr S. Dhanunjaya
 Lec. in physics
 S. Dhanunjaya
 25/4/23

Dr. G. Paul
PRINCIPAL
SRI MAHAYOGI LAKSHMAMMA
GOVT. DEGREE COLLEGE
YEMMIGANUR - 518360.

Permission Letter

Yemmiganur,
Date : 26-05-2023.

From
Dr G Paul Devadanam,
Lecturer in Physics,
SML Govt Degree College,
Yemmiganur

To
The Principal,
SML Govt Degree College,
Yemmiganur.


Respected Sir,

Sub: Proposal for the conduct of a certificate course on
Refrigeration Techniques for the Third Year BSc MPCs Students Reg.

I would like to bring a proposal for the benefit of the students of Our College that the Department of Physics wants to conduct a certificate course on Refrigeration Techniques for the Third year BSc Students of Our College for 32 Days. Hence, I am with a plan to conduct the certificate course which helps the Students in academic and Competitions. In this regard, I request you sir to give me permission to conduct the certificate course from **06-05-2023 to 03-07-2023**

The details of the programme are:

- | | |
|--|--------------------------------|
| 1. Name of the proposed programme: | Refrigeration Techniques |
| 2. Duration and Timings of the programme: | 32 Hours (9:00 AM to 10:00 AM) |
| 3. Commencement date of the programme: | 06 th May 2023 |
| 4. No. of Students expected for the admission: | 14 Students |
| 5. Course Fee: | No Fee |


Incharge
Dept. of Physics
Sri Mahayogi Lakshamma
Govt. Degree College
Yemmiganur - 518 360,

**SML GOVERNMENT DEGREE COLLEGE, YEMMIGANUR
DEPARTMENT OF PHYSICS**

CERTIFICATE COURSE -CIRCULAR


All III year students are here by informed that the Department of Physics will start a certificate course on **Refrigeration Techniques** From 06-05-2023. Those who are interested to join the course, they have to enroll their names in the Department of Physics and certificate will be given after the completion of the course.

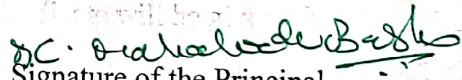
Name of the Course : **Refrigeration Techniques**

Duration of the course: 32 Hours

Commencement of the Course: 06-05-2023

Time schedule of the classes: 9 AM to 10 AM


Incharge of the Department
Incharge
Dept. of Physics
Sri Mahayogi Lakshamma
Govt. Degree College
Yemmiganur - 518 360,


Signature of the Principal
PRINCIPAL
SML. Govt. Degree College
YEMMIGANUR, Kurnool (A.P.)



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YEMMIGANUR, KURNOOL DIST.
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Department of Physics

Willingness of the students to join in Certificate course in

Refrigeration Techniques

(06-05-2023 to 03-07-2023)

S.No	Hall- ticket Number	Student Name	Mobile Number	Group	Signature
1.	20360049017	B MUNI SWAMY	9346780308	III MPCs	B. Muni Swamy
2.	20360049022	A PRABHAVATHI	7013470501	III MPCs	A. Prabhavathi
3.	20360049018	P MUNNA	9346321813	III MPCs	P. Munna
4.	20360049019	M NAGARAJU	7013476417	III MPCs	M. Nagaraju
5.	20360049020	D PARUSHA RAMUDU		III MPCs	D. Parusha Ramudu
6.	20360049024	P PRAKASH	8297618420	III MPCs	P. Prakash
7.	20360049030	M UPENDRA	6301510801	III MPCs	M. Upendra
8.	20360049031	G VIJAY KUMAR	9704252436	III MPCs	G. Vijay Kumar
9.	20360049032	J YELLAPPA		III MPCs	J. Yellappa
10.	20360049033	KURUVA PRABHAKAR	6304419880	III MPCs	K. Prabhakar
11.	20360049034	GOLLA SOMESH	7207090134	III MPCs	G. Somesh
12.	20360049025	KURUVA RAJAMMA	8187813405	III MPCs	K. Rajamma
13.	20360049026	B RAMUDU	6301398351	III MPCs	B. Ramudu
14.	20360049027	T RAVI PRAKASH	6302831525	III MPCs	T. Ravi Prakash

[Signature]
Dept. of Physics

**Sri Mahayogi Lakshamma
Govt. Degree College
Yemmiganur - 518 360,**

[Signature]
PRINCIPAL

**SML. Govt. Degree College
YEMMIGANUR, Kurnool (Dt.)**



Certificate Course- Refrigeration Techniques

Brief report:

The Department of Physics, SML Govt. Degree College organized a certificate course in Refrigeration Techniques for B.Sc students during the academic year 2022- 23 for a period of 32 days ie.06-05-2023 to 03-07-2023.

In this connection, a departmental meeting was held by the In-Charge and faculty member of Physics department along with K Mahaboob Basha, principal of the college. The head of the Institution presided over the inaugural function and appreciated the faculty of the department for organizing such a valuable certificate course. He advised the students to grab the opportunity by joining the course.

During the course period the following faculty members of the college visited the classes & laboratory work and presented their valuable suggestions for the betterment of the program. The faculty members involved in the program are

1. Dr. M. Suseelamma, Lecturer in Botany, SML GDC
2. Sri. C Naga Pradeep Kumar, Lecturer in Computer Science SML GDC

After the completion of course, an assessment test is conducted to evaluate the performance of the participants.

On July 3rd – 2023, a valedictory function was organized by the Department of Physics and Dr. K. Mahaboob Basha, principal of the college addressed the meeting and said that it was a remarkable achievement of the department of Physics and congratulated all the participants. Finally, the principal distributed the certificates. All the teaching and non-teaching staff attended the program and made it a grand success.

2

SML GOVERNMENT DEGREE COLLEGE, YEMMIGANUR

DEPARTMENT OF PHYSICS

SUMMARY OF THE CERTIFICATE COURSE

The Department of Physics was started Certificate Course on 06-05-2023 with the duration of 32 days for 32 hours from 06-05-2023. Dr.K.Mahaboob Basha, Principal of the SML Govt.Degree College inaugurating the course and explain the importance of **Refrigeration Techniques**. The class was conducted from 9 AM to 10 AM in working days. The valedictory function was held on 03-07-2023. The Principal distributed course completion certificate and appreciated the faculty for successful completion of course. This course very useful for B.Sc.students to know the principles of refrigeration and applications and also usages in our daily life.14 students completed the course and received the certificate course certificates in **Refrigeration Techniques** in the academic year 2022-23.

Objectives

- To know the principles and Techniques of Refrigerator.
- To know the applications of Low temperature physics.
- To know the classification properties of refrigerants and their effect on environment.

Outcomes:

- Identify various methods and techniques of refrigerator.
- Acquire a critical knowledge on refrigeration.
- Demonstrate skills of refrigerators through hands on experience and learns about refrigeration components.
- Comprehend the applications of Low temperature physics and refrigeration.



**SRI MAHAYOGI LAKSHMAMMA GOVERNMENT DEGREE COLLEGE
YEMMIGANUR.**

(Affiliated to Rayalaseema University, Kurnool)
Near Hanumapuram, Adoni Road, YEMMIGANUR – 518 360,
Kurnool District, Andhra Pradesh.

**Department of Physics
Certificate course in Refrigeration Techniques**

UNIT- I BASICS OF THERMODYNAMICS (8 Hours)

Definition, concept of thermodynamic system and surroundings, closed system, open system, isolated system thermodynamics, definition of work, Zeroth law of thermodynamics, First law of thermodynamics for cyclic and noncyclical processes.

UNIT- II PRODUCTION OF LOW TEMPERATURE (8 Hours)

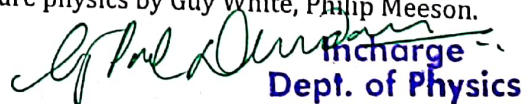
Production of low temperatures-Introduction, Freezing mixtures, Joule-Thomson effect, Regenerative cooling, Different methods of liquefaction of gases, liquefaction of air, Production of liquid hydrogen and nitrogen.

UNIT-III PRINCIPLES OF REFRIGERATION (10 Hours)

Introduction to Refrigeration- Natural and artificial refrigeration , Stages of refrigeration, Types of refrigeration - Vapor compression and vapor absorption refrigeration systems, Refrigeration cycle and explanation with a block diagram, Introductory ideas on air-conditioning.
Refrigerator and its working, Block diagram, Coefficient of Performance (COP), Tons of refrigeration (TR) and Energy Efficiency Ratio (EER), Refrigerator components: Types of compressors, evaporators and condensers and their functional aspects, defrosting in a refrigerator, Refrigerant leakage and detection.

Reference Books:

- 1) Heat and Thermodynamics by Brij Lal & N. Subramanyam, S.Chand Publishers.
- 2) Low-Temperature Physics by Christian E. & Siegfried H., Springer.
- 3) A course in Refrigeration and Air Conditioning by S.C. Arora and S. Domkundwar, Dhanpatrai and sons, Delhi.
- 4) Experimental techniques in low temperature physics by Guy White, Philip Meeson.


Incharge

**Dept. of Physics
Sri Mahayogi Lakshamma
Govt. Degree College
Yemmiganur - 518 360,**



REGISTER OF ATTENDANCE & DUES

LAKSHMI NARAYAN SWAMI MATH, CHITRA DURG, DIST. ANAPUR, TAMIL NADU

Date: _____

Sl. No.	NAME	MONTHS											
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	Mr. [Name]												
2	Mr. [Name]												
3	Mr. [Name]												
4	Mr. [Name]												
5	Mr. [Name]												
6	Mr. [Name]												
7	Mr. [Name]												
8	Mr. [Name]												
9	Mr. [Name]												
10	Mr. [Name]												
11	Mr. [Name]												
12	Mr. [Name]												
13	Mr. [Name]												
14	Mr. [Name]												
15	Mr. [Name]												
16	Mr. [Name]												
17	Mr. [Name]												
18	Mr. [Name]												
19	Mr. [Name]												
20	Mr. [Name]												


Number present: _____
Daily: _____

Total: _____

Question Paper

WRITE A BRIEF ANSWER TO FOLLOWING QUESTIONS.

- Q.1. Explain zeroth law of thermodynamics?
- Q.2. Explain First law of thermodynamics?
- Q.3. Define system and surroundings?
- Q.4. Write Joule Thomson Effect?
- Q.5. Write different methods of liquefaction of gases?
- Q.6. Explain production of liquid hydrogen and Nitrogen?
- Q.7. Explain different stages of Refrigeration?
- Q.8. Draw Refrigerator block diagram?
- Q.9. Explain Refrigerant leakages and detection?
- Q.10. Write Advantages and Dis advantages of Refrigerator?


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STUDENTS MARKS AWARD SHEET

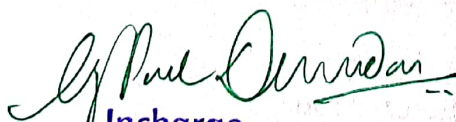
AWARD LIST-2022-23


Date: 03-07-2023

S.no	Regd - No	Name of the student	Max.50	Grade
1.	20360049017	B MUNI SWAMY	36	A
2.	20360049022	A PRABHAVATHI	44	A
3.	20360049018	P MUNNA	36	A
4.	20360049019	M NAGARAJU	24	B
5.	20360049020	D PARUSHA RAMUDU	21	B
6.	20360049024	P PRAKASH	32	A
7.	20360049030	M UPENDRA	31	A
8.	20360049031	G VIJAY KUMAR	24	B
9.	20360049032	J YELLAPPA	24	B
10.	20360049033	KURUVA PRABHAKAR	33	A
11.	20360049034	GOLLA SOMESH	41	A
12.	20360049025	KURUVA RAJAMMA	44	A
13.	20360049026	B RAMUDU	33	A
14.	20360049027	T RAVI PRAKASH	24	B

A Grade >50%

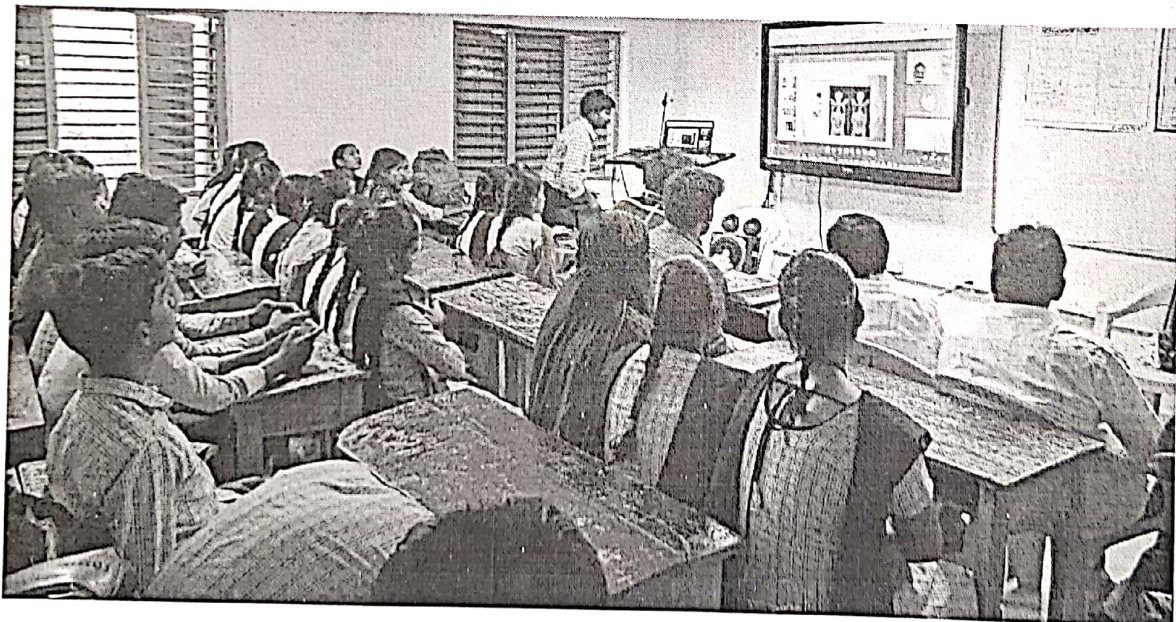
B Grade >50%


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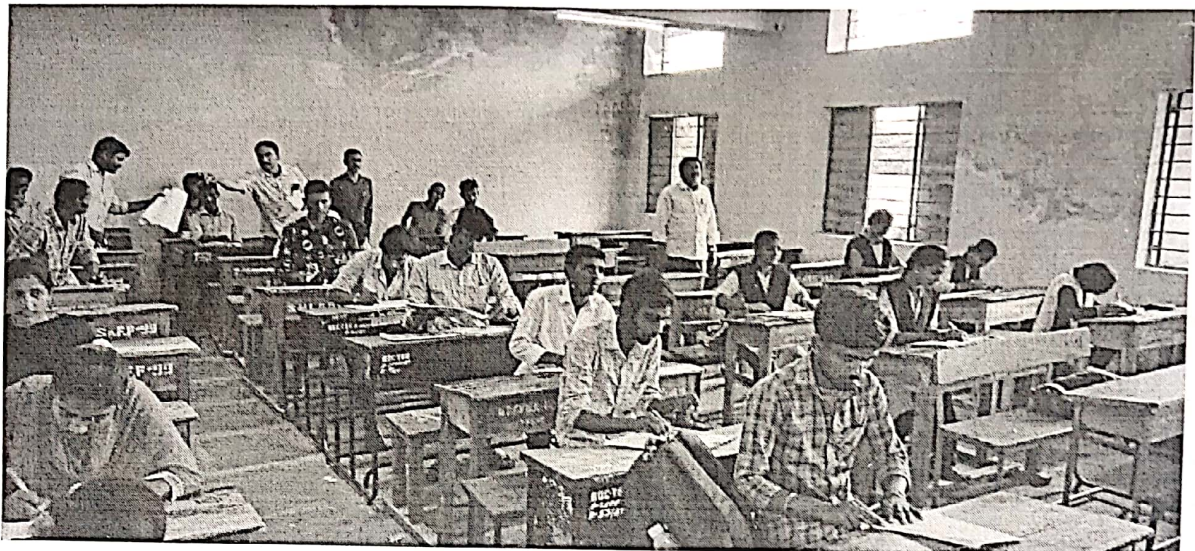

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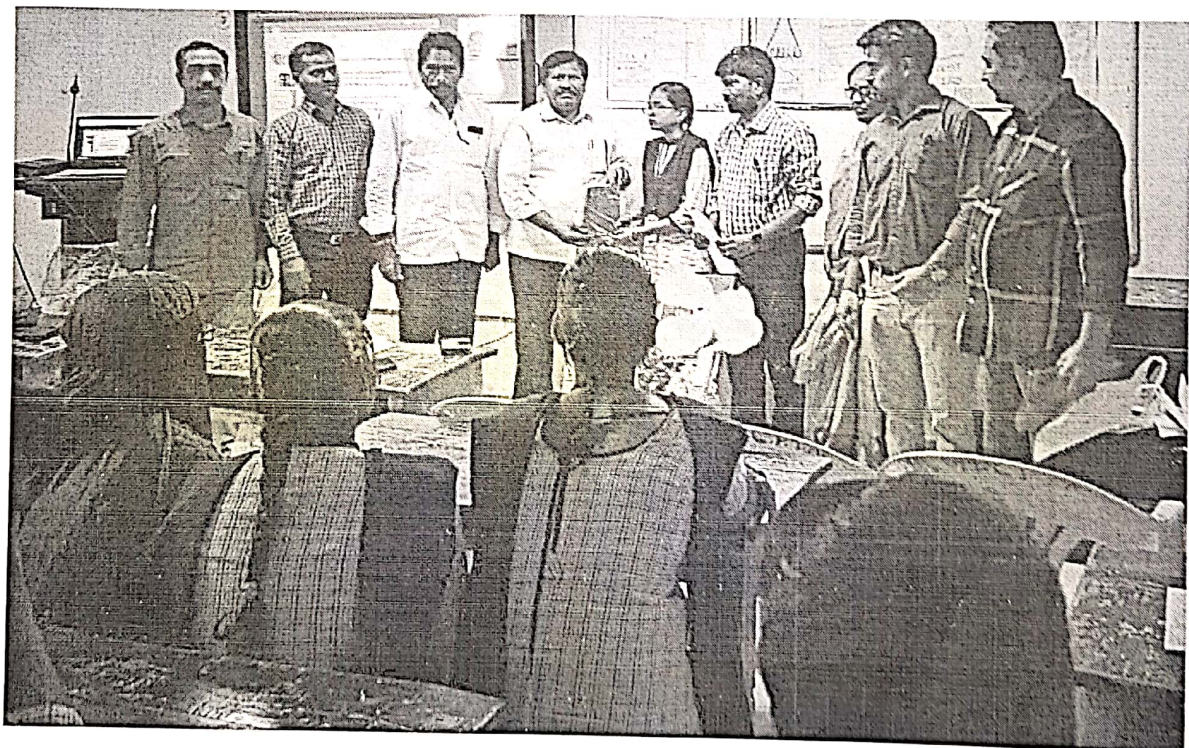
Innugural function -Certificate Course 2022-23



Explain the Refrigeration Techniques with PPTs



Certificate course -Examination conducted –monitoring by the Staff



Certificate distributed by Dr.K.Mahaboob Basha,Principal

FEED BACK

11. Name of the student : GOLLA SOMESH

Class & group : III B Sc MPCs

Regd No : 20360049034

Opinion : ~~1. Excellent~~ 2. Good 3. Satisfactory

G. Somesh
Signature of the student:

12. Name of the student : KURUVA RAJAMMA

Class & group : III B Sc MPCs

Regd No : 20360049025

Opinion : ~~1. Excellent~~ 2. Good 3. Satisfactory

K. Rajamma
Signature of the student:

13. Name of the student : B RAMUDU

Class & group : III B Sc MPCs

Regd No : 20360049026

Opinion : ~~1. Excellent~~ 2. Good 3. Satisfactory

B. Ramudu
Signature of the student:

14. Name of the student : T RAVI PRAKASH

Class & group : III B Sc MPCs

Regd No : 20360049027

Opinion : ~~1. Excellent~~ 2. Good 3. Satisfactory

T. Ravi Prakash
Signature of the student:

FEED BACK

1. Name of the student: B MUNI SWAMY

Class & group : III B Sc MPCs

Regd No : 20360049017

Opinion : 1. Excellent 2. Good 3. Satisfactory

B. Muni Swamy
Signature of the student:

2. Name of the student : A PRABHAVATHI

Class & group : III B Sc MPCs

Regd No : 20360049022

Opinion : 1. Excellent 2. Good 3. Satisfactory

A. Prabhavathi
Signature of the student:

3. Name of the student: P MUNNA

Class & group : III B Sc MPCs

Regd No : 20360049018

Opinion : 1. Excellent 2. Good 3. Satisfactory

P. Munna
Signature of the student:

4. Name of the student: M NAGARAJU

Class & group : II B Sc MPCs

Regd No : 20360049019

Opinion : 1. Excellent 2. Good 3. Satisfactory

M. Nagaraju
Signature of the student:

5. Name of the student: D PARUSHA RAMUDU

Class & group : II B Sc MPC

Regd No : 20360049020

Opinion : 1. Excellent 2. Good 3. Satisfactory

D. Parusha Ramudu
Signature of the student:

FEED BACK

6. Name of the student: P PRAKASH

Class & group : III B Sc MPCs

Regd No : 20360049024

Opinion 1. Excellent 2. Good 3. Satisfactory

P. Prakash
Signature of the student:

7. Name of the student: M UPENDRA

Class & group : III B Sc MPCs

Regd No : 20360049030

Opinion 1. Excellent 2. Good 3. Satisfactory

M. Upendra
Signature of the student:

8. Name of the student: G VIJAY KUMAR

Class & group : III B Sc MPCs

Regd No : 20360049031

Opinion 1. Excellent 2. Good 3. Satisfactory

G. Vijay Kumar
Signature of the student:

9. Name of the student: J YELLAPPA

Class & group : III B Sc MPCs

Regd No : 20360049032

Opinion 1. Excellent 2. Good 3. Satisfactory

J. Yellappa
Signature of the student:

10. Name of the student: KURUVA PRABHAKAR

Class & group : III B Sc MPC

Regd No : 20360049033

Opinion 1. Excellent 2. Good 3. Satisfactory

K. Prabhekar
Signature of the student:



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SRI MAHAYOGI LAKSHMAMMA GOVERNMENT DEGREE COLLEGE

YEMMIGANUR, KURNOOL DIST.

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Certificate of Appreciation

This is to certify that Mr./ Miss A. Prabhavathi..... of III MPCs
with Registration No 20360049022.....has successfully completed a short term certificate course in
Refrigeration Techniques organized by the Department of Physics, Sri Mahayogi Lakshamma Government Degree College,
Yemmiganur Kurnool District during the academic year 2022-23, from 06-05-2023 to 03-07-2023.


Lecturer in Charge

Department of Physics





PRINCIPAL

