

From  
The Head of Department  
Department of Physics  
MES Keveeyam College, Valanchery

To  
The Principal  
MES Keveeyam College, Valanchery

Sir,  
Sub: Request for the Approval of Certificate Course.

The Department of Physics is planning to conduct a certificate course on "Manufacturing of Light Emitting Diodes (LED) (CC/PHY/96)." of 30 hours duration for UG students. So I kindly request you to grant permission for the same.

Thanking you.

Yours faithfully,  
Dr. MP Unnikrishnan  
Associate professor  
Department of Physics



Place: Valanchery  
Date: 09/06/2014



From  
The Head of Department  
Department of Physics  
MES Keveeyam College, Valanchery

To  
The Principal  
MES Keveeyam College, Valanchery

Sir,

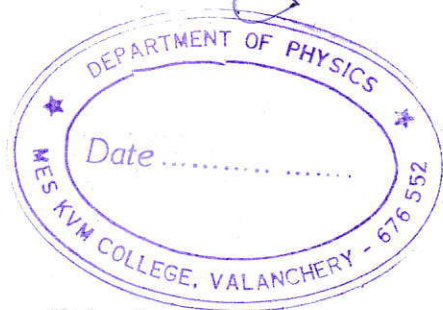
Sub: Request for the Approval of Board of Studies for the short term course.

The following academicians may be included in the Board of Studies for the short term course on "Manufacturing of Light Emitting Diodes (LED) (CC/PHY/96)." to be conducted by the Department.

1. Prof. Prejith Chandran, Assistant Professor, TMG College Tirur
2. Prof. Sabna M, Assistant Professor, MES Ponnani College

Kindly do the necessary action to constitute the Board of Studies with these members.  
Thanking you.

Yours faithfully,  
Dr. MP Unnikrishnan  
Associate professor  
Department of Physics



Place: Valanchery  
Date: 13/06/2014



**MES KEVEEYAM COLLEGE, VALANCHERY**  
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www.meskvcollege.org, Email: principal@meskvcollege.org

**Order No. Acs/2014-15/01**

**Date: 18-06-2014**

***Proceeding of the principal, MES Keveeyam College Valanchery***

**(Present: Lt (Dr) P. Mohamedali)**

**Ref:** (1) Request for the Approval of Certificate Course, dated 09/06/2014

(2) Request for the Approval of Board of Studies for the short term course, dated 13/06/2014

**ORDER**

As per the cited (1), a request was received from the HOD, Department of Physics for the commencement of a short term certificate course on “Manufacturing of Light Emitting Diodes (LED) (CC/PHY/96).” The Head of Department has also proposed for a panel of academicians to be included in the Board of Studies (2).

The Department of Physics is hereby given sanction to carry out a short term certificate course on “Light Emitting Diode (LED) Manufacturing” to the students of this institution.

The Board of Studies for the above mentioned course is constituted with the following members,

1. Prof. Prejith Chandran, Assistant Professor, TMG College, Tirur.
2. Prof. Sabna M, Assistant Professor, MES Ponnani College.

Order is issued accordingly,

Lt (Dr) P. Mohamedali

Principal

Copy to

1. HOD, Department of Physics
2. File



## MINUTES OF BOARD OF STUDIES MEETING

Venue: Department of Physics

Date: 24/06/2014

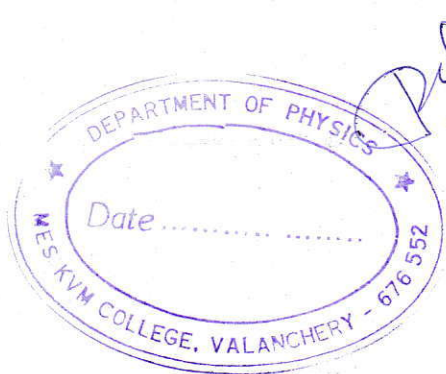
Agenda: Approval of syllabus of the short term course

Decision:

1. Discussions were done on the prepared syllabus.
2. Suggestions were there to offer skills on the manufacturing of LED bulbs.
3. Approval can be given to syllabus.

Members present:

1. Prof. Prejith Chandran, Assistant Professor, TMG College Tirur
2. Prof. Sabna M, Assistant Professor, MES Ponnani College





# MES KEVEEYAM COLLEGE VALANCHERY

## DEPARTMENT OF PHYSICS

### SHORT TERM COURSE ON

#### Manufacturing of Light Emitting Diodes (CC/PHY/96)

(2014-15)

#### SYLLABUS

##### Objectives:

It is our constant endeavour to transform individuals from all sections of society into employable resources and successful entrepreneurs through innovative technology training programs and, to participate in socio-economic development by imparting knowledge and helping people realize their dreams.

##### Course Contents

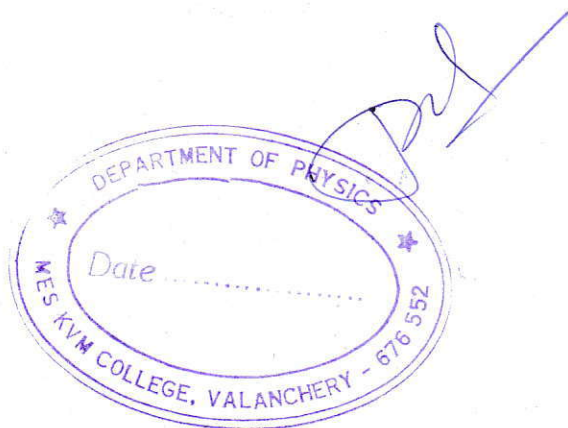
- Theory : 20 Hours duration
- Lab : 10 Hours duration

##### Scheme of Evaluation

- Written Examination (Conventional) : 40 Marks
- Practical Examination : 20 Marks

**Total : 60 marks**

**A Grade: 80% and above, B Grade: 60-79% %, C Grade: 40-59%%, Below 40% D Grade**



# **Manufacturing of Light Emitting Diodes (CC/PHY/96)**

**(2014-15)**

## **SYLLABUS**

### **Unit 1: Introduction about LED (5 hours)**

- What is an LED?
- Indicator lights and illumination
- What is the difference between Indicator lights and illumination?
- LED are semiconductor diodes
- Type of LEDs- single color 5mm, high power LEDs, bi-color and multi color, flashing LEDs- with a small time integrated into the package etc.,
- Applications of LED- in residential, commercial, hospitality, decorative, road ways etc.,

### **Unit 2: Requirement tools need for LED manufacturing (5 hours)**

- Soldering kit- iron, past, lead, stand
- De- soldering wick and pump
- Screwdriver kit, screws
- Multimeter, luxmeter
- Lead testing demo kit
- Lead testing power supply

### **Unit 3: Raw- materials (4 hours)**

- 1W white LED, metal PCB, LED housings and LED casing LED driver (power supply)
- What is LED drive- explain the LED driver, how LED driver works
- What are the components used in the driver, LED driver block diagram explanation.
- Different types of LED drivers.

### **Unit 4: What is SMPS? (6 hours)**

- SMPS Block Diagram explanation
- How SMPS Power supply works
- Sections and Components are used in the SMPS
- Fault finding and troubleshooting

### **Unit 5: LED Bulbs Manufacturing-Practical (10 hours)**

- 3W LED AC Lamp Manufacturing

**References:**

Electronics and computer science- Prof. J Babu, Dr. P T Thomas

Principles of Electronics- VK. Mehtha. Rohith Mehtha

Introduction to light emitting diode technology and applications- Gillbert Held

