



SKR&SKR GOVT COLLEGE FOR WOMEN (A) KADAPA

Certificate Course on Photonic Devices

Jan 12th to Feb 27th 2021

Offered by: Department of Physics

SKR & SKR GDCW (A), KADAPA

Course Inauguration by: Chief Guest

Prof. M.V. Shankar

YV University, KADAPA

Patron:

Prof. P. Subbalakshumma

Principal

SKR & SKR GDCW (A)

COURSE COORDINATOR

DR. M. PADMAVATHI

LECTURER IN PHYSICS

DEPARTMENT OF PHYSICS

Certificate Course on Photonic Devices

Offered by Dept of Physics

SKR&SKR GDCW(A) KADAPA

Course Description

This online short course will give you an in-depth understanding of the fundamentals, design, fabrication, operation and performance of photonic devices for a variety of applications, including industrial, optical-fibre communications and space.

It covers photonic devices and examines how ingenious device design and their applications.

Course content

The following topics will be covered during the course:

- Photon Optics, Photon and Atoms:
The Photon, Photon Streams, Quantum states of Light, Energy levels, Occupation of Energy levels, Interaction of Photons with Atoms, Thermal light and Luminescence Scattering.
- Semiconductor Photonics:
Interaction of Photonics with Charge carriers, Light Emitting Diodes, Laser Diodes, Semiconductor optical Amplifiers.
Photo detectors, Photoconductors, Photodiodes, Avalanche photodiodes and Array detectors, Solar cells.
- Acousto-Optics and Electro-Optics:
Interaction of light with sound, Acousto-Optics Devices, Principle of Electro-Optics, Liquid Crystal device.
- Fiber Optic devices:
Fiber Lasers, Coupling of LEDs and lasers to optical fibers, Fiber Optic Sensors, Fiber Optic Components, Modulators and Multiplexers.

This course is aimed for

The department's short courses modules are aimed at those **studying B.Sc. students**.

They're particularly suited to under graduates in electronics and Physics and computer science who want to further their knowledge on a particular topic, or work towards a Master's degree or an Industry.

You don't need to have any pre-requisite qualifications to take this course.

Teaching, assessment and certificates

All teaching will be online and involve a mixture of pre-recorded lectures and live seminar and tutorial sessions.

The course runs over 4 weeks, with online exams.

Classes will be held every day one hour from Monday to Friday, and an assessment on every Saturday during 15th January to 14th February 2021.

If you complete the course but not the exam, you'll receive a certificate of attendance.

If you take and pass the all the exams (4 assessments/tests + 1 grand test) you'll get a certificate stating this, which includes your pass level.

Learning outcomes

On completion of this course, you should:

- Have a thorough and detailed understanding of Photonics and interaction of photon with atom.
- Understand the principles of semiconductor devices, operation and fabrication of semiconductor Photonic devices
- Understand the Electro-Optic and Acousto-Optic devices working and its photonic applications.
- Understand the coupling efficiency of an LED and a laser to an optical fibre
- Be familiar with a wide range of different types of laser and their performance and limitations and be able to select the best one for a particular application
- Be able to use logical reasoning to explain device behavior together with detailed structural diagrams of devices.
- Feel excited and motivated to want to do research or design in the area of advanced optical devices.

References:

1. Fundamentals of Photonics, B.E.A. Saleh and M.C. Teich, Second Edition, Wiley publisher, 2014.
2. Physics of Photonic Devices, Chuang, Shun Lien. Wiley Series in Pure and Applied Optics Series, John Wiley & Sons (2012).

Course team

Internal Mentors

1. Dr M. Padmavathi, Incharge, Dept of Physics and Electronics
2. Dr. Sudhakar Reddy, Professor in Physics
3. Dr. Ramanaiah, Professor in Physics

External Mentor:

1. Dr. Putha Kishore



He had completed his PhD from National Institute of Technology Warangal in the area of Photonics. He pursued UG to PG from SV University Tirupati. He had 10 years research experience and 6 years teaching experience at various prestigious institutions like National Institute of Technology Warangal, Sreenidhi Institute of Science and Technology Hyderabad and Annamacharya Institute of Science and Technology Reajampet. He taught Physics, Electronics and Photonics related subjects to UG and PG students. His research includes design and development of fiber optic vibration sensors, Fiber optic sensors and Fiber Bragg Grating sensors for sensing the various physical parameters such as temperature, strain, vibration, pressure, liquid level and chemical sensors. He also studied about distributed and multiplexing fiber optic sensors. He had published 24 international journals and 42 international conference research papers.

At present he is working as a Technical sales consultant, Department of R&D, Infinity Systems Hyderabad since June 2020.

SKR & SKR GOVERNMENT DEGREE COLLEGE FOR WOMEN (A)



Kadapa, AP-516001
(Accredited with 'B' by NAAC)

Dr. Manchineellu Padmavathi
M.Sc., Ph.D.

Assistant Professor in Physics
Department of Physics

Mobile: 09160313719
Email: paddu.manchi@gmail.com

To
The Principal,
SKR & SKR Government Degree College for Women (A), Kadapa

Date: 30-12-2020

(Through Proper Channel)

Respected Madam,

Sub: To Organise Certificate course in the Dept of Physics and Electronics "- Reg

I submit that, the Department of Physics planning to Organise a certificate course in "Photonic Devices" for one month i.e. from 10-01-2021 to 10-02-2021 for the benefit of the UG students related Physical and Electronics.

In this context, I humbly request the principal to grant permission to Organise a certificate course in the Dept of Physics and Electronics.

Thanking you madam.

Yours Sincerely,

M. Padmavathi 30/12/20

(Dr. M. Padmavathi)

HEAD
Department of Physics
SKR & SKR Govt. College for Women (A)
Kadapa - 516 001.

P. Srinivas Reddy 30.12.2020
PRINCIPAL
SKR & SKR Govt. Degree College
for Women, KADAPA

SKR & SKR GOVERNMENT DEGREE COLLEGE FOR WOMEN (A)



Kadapa, AP-516001
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Dr. Manchincellu Padmavathi
M.Sc., Ph.D.

Assistant Professor in Physics
Department of Physics

Mobile: 09160313719
Email: paddu.manchi@gmail.com

Date: 31-12-2020

To
Prof. M.V Shankar,
Department of Physics,
YVU, Kadapa.

(Through Proper Channel)

Respected Sir,

Sub: Inauguration of Certificate course in Dept of Physics- Reg.

I submit that, the Department of Physics Organising a certificate course in "Photonic Devices" during the period of 10-01-2021 to 10-02-2021, for the benefit of the UG students related Physics and Electronics.

In this context, I feel very much glad to invite you to act as chief guest and inaugurate the certificate course in our department on 02-01-2021 at 11AM.

Thanking you sir,

Yours Sincerely,

M. Padmavathi
31/12/20
(Dr. M. Padmavathi)

HEAD
Department of Physics
SKR & SKR Govt. College for Women (A)
Kadapa - 516 001.

A. Srinivas Prasad
31.12.2020
PRINCIPAL
SKR & SKR Govt. Degree College
for Women, KADAPA.



**SKR & SKR GOVT. COLLEGE FOR WOMEN
(A) KADAPA**

Certificate Course on Photonic Devices

Jan 10th to Feb 10th 2021

Organised by: Department of Physics

SKR & SKR GDCW (A), KADAPA

Course Inauguration by: Chief Guest

Prof. M.V. Shankar

YV University, KADAPA

Patron:

Prof. P. Subbalakshumma

Principal

SKR & SKR GDCW (A)

**COURSE COORDINATOR
DR. M. PADMAVATHI
LECTURER IN PHYSICS
DEPARTMENT OF PHYSICS**

P. Subbalakshumma
31.12.2020
SKR & SKR Govt. Degree College
for Women, KADAPA

Inauguration:

Inauguration of Certificate on Photonic Devices on 02-01-2021 by Prof. M.V Shankar, YV University. Principal Dr.P.Subbalakshumma gaaru motivated the students to utilize the opportunity. Vice principal smt.L.Sudhheera madam and Faculty members of Physics department attended for the inaugural session.



Banner for the Course:



CERTIFICATE COURSE: PHOTONIC DEVICES
From Jan 10th to Feb 10th 2021

Course Offered by: Department of Physics
SKR & SKR GDCW(A), KADAPA

Course Inauguration by: Chief Guest
Prof. M.V. Shankar
YV University, KADAPA

Patron:
Prof. P. Subbalakshamma
Principal
SKR & SKR GDCW(A),

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- Semiconductor Photonics
- Acousto-Optics and Electro-Optics
- Fiber Optic devices

Course Coordinator
Dr. M. Padmavathi
Lecturer in Physics
Department of Physics
SKR & SKR
GDCW(A), KADAPA

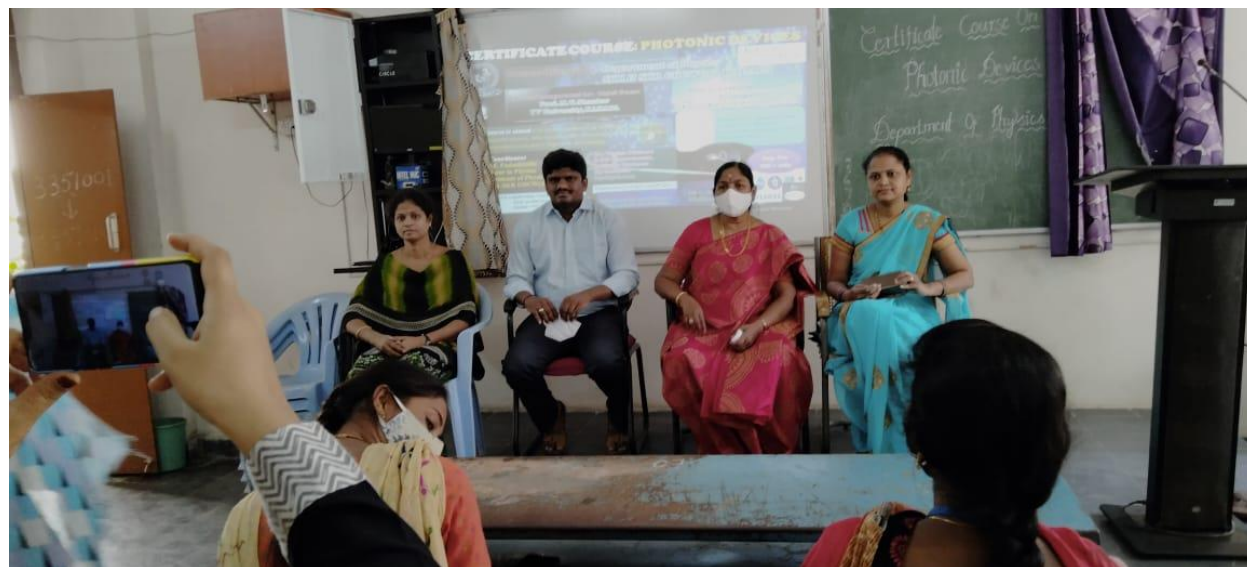
Mentor
• Dr. Putha Kishore
R&D department,
Infinity Systems
Hyderabad
isyshyd.com

For registration Contact:
Dr. M. Padmavathi
Mail: paddu.manchi@gmail.com
Mobile: +91 9160313719

Course registration Last date: Jan 9th 2021

Banner contained the Photonic devices like LCD Screen, Solar Panels, LEDs, Diode Laser and Quantum leaser and optical fibre Laser Light. Course Mentor and Registration details also.

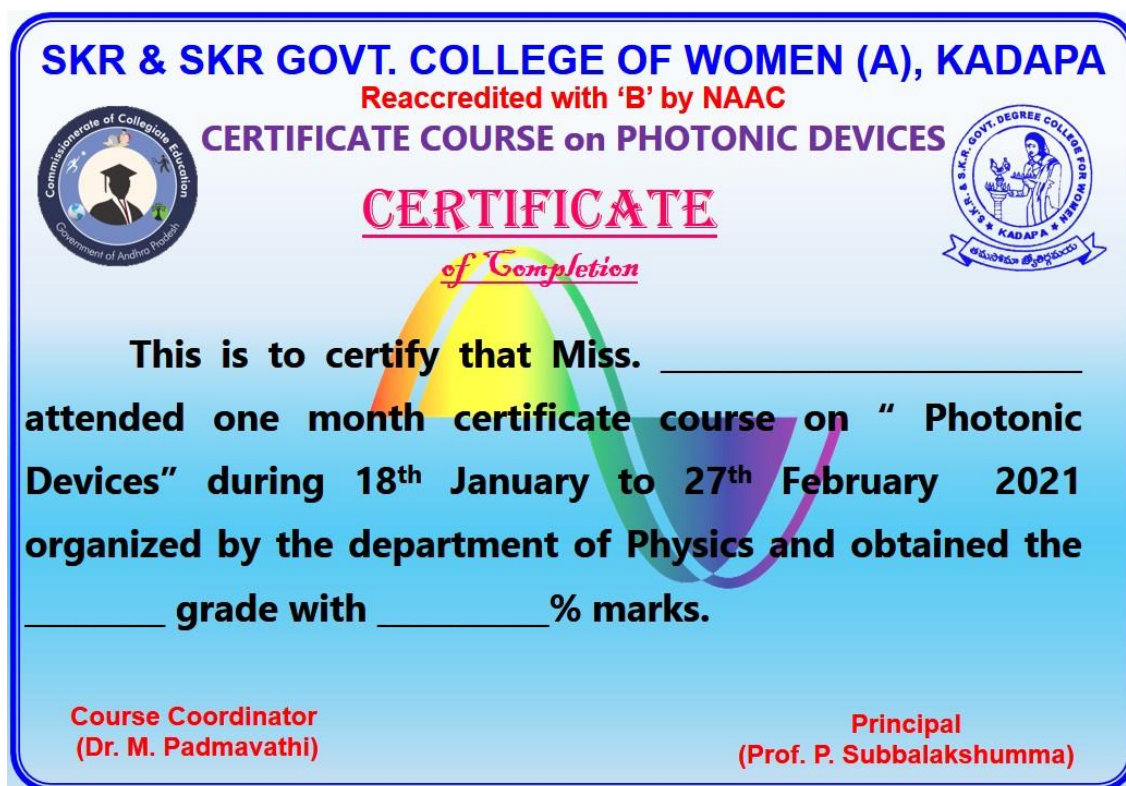
Course started on Jan 12th 2021: Principal madam gave her valuable message to the students to listen the classes by Dr.P.Kishore and to gain the knowledge.



Dr.P.Kishore Started the classes for the certificate course on Photonic Devices on 12-01-2021. Arranged Live also for the students who wants to attend Online.



In this 4 week course weekly assessment has been conducted through Quizzes and assignments. Total 40 students benefited with the course. At the end students appeared for the exam on the last day of course i.e. on 27th Feb 2021. After complete evaluation of their attendance, assignments and who got 40% marks in the end exam received their certificates on 12th March 2021.



Certificate distribution to the Students who completed successfully on March 12th 2021.







Group Photo of Pincipal Dr.P.Subbalakshumma gaaru, Mentor Dr.P.Kishore, Course Coordinator Dr.M.Padmavathi with the students who completed the course successfully.