



J.B.INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC AUTONOMOUS
(Accredited by NAAC, Permanently Affiliated to JNTUH)

YENKAPALLY (V), MOINABAD (M), RANGA REDDY, DISTRICT
HYDERABAD. , MOINABAD, Hyderabad, 500075



Guest Lecture
on
FBG-Fiber Bragg Grating
MAR.17, 2021

Organized by

IETE STUDENT FORUM, JBIET



**Department of Electronics and Communication
Engineering**

Circular and Poster



J.B. INSTITUTE OF ENGINEERING & TECHNOLOGY
(UGC Autonomous)
(Accredited by NBA & NAAC, Approved by AICTE & Permanently Affiliated to JNTUH)

Department of Electronics and Communication Engineering

Date: 22-11-2023

Circular

This is to inform all B.Tech students that, IETE Students Forum (ISF) branch of ECE is organizing **IETE student awareness program 2023** on 29th November, 2023 at 10:30 AM. Hence requesting to inform all the IIIrd Year students to be present on the day.

Copy to

1. Principal
2. HODs ECE, ECM, EEE,
3. Class In charges

Towheed S
Dr. Towheed Sultana
HODECE



J. B. INSTITUTE OF ENGINEERING & TECHNOLOGY
UGC Autonomous,
Accredited by NBA & NAAC & Approved by AICTE & Permanently Affiliated to JNTUH
Shashik Nagar, Yankapally Village, Moinsabad Mandal, R.R. District, Hyderabad -500073

Department of Electronics & Communication Engineering
&
IETE STUDENT FORUM



Seminar
on
FBG-Fiber Brag Grating

Resource Person
Dr. V Usha shree

Date
17.03.2021

Mr. Rajkumar D Bhure Coordinator	Dr. Towheed Sultana HOD	Dr. P C Krishnamachary Principal
-------------------------------------	----------------------------	-------------------------------------

SUMMARY OF EVENT:

Guest lecture Date: MAR.17, 2021

Number of participants: 112

OBJECTIVE	Awareness in image processing
CONVENOR	Mr.Rajkumar D Bhure
RESOURCE PERSONS	Dr.V Usha Shree
COORDINATOR(S)	Mrs.E Shilpa and Mr.D Kotya

Fiber Bragg Gratings (FBGs) are optical devices that have become important components in various applications, particularly in the field of telecommunications and sensing. Here's an overview of FBGs:

1. Basic Principle: FBGs are based on the principle of Bragg diffraction, where constructive interference occurs when monochromatic light is reflected off a periodic structure. In an FBG, the periodic structure is a series of refractive index changes along the length of an optical fiber.

2. Fabrication: FBGs are typically created by exposing a section of an optical fiber to a pattern of intense ultraviolet (UV) light. The UV light induces a periodic modulation of the refractive index along the fiber core, creating a grating structure.

3. Working Principle: When broadband light travels through the fiber, certain wavelengths are reflected at the Bragg wavelength, which is determined by the grating period.



- The reflected wavelength is given by the Bragg condition: $2n\Lambda = m\lambda$, where n is the effective refractive index, Λ is the grating period, m is the order of the Bragg reflection, and λ is the wavelength.

4. Applications:

- Telecommunications:** FBGs are used in the telecommunications industry as wavelength-selective elements in fiber-optic communication systems, such as in fiber Bragg grating filters and multiplexers.

- **Sensing:** FBGs are widely used in optical sensing applications. Changes in temperature or strain can cause a shift in the Bragg wavelength, making FBGs valuable in sensing applications for structural health monitoring, oil and gas industry, and medical devices.
- **Fiber Lasers:** FBGs are employed in fiber lasers as wavelength-selective elements, contributing to the stability and tunability of the laser output.

5. Advantages:

- FBGs are compact and lightweight.
- They can be integrated into existing optical fiber systems.
- They are highly sensitive to changes in temperature, strain, or other environmental conditions, making them excellent for sensing applications.

6. Challenges:

- Fabrication precision is crucial, and achieving uniform gratings over long lengths of fiber can be challenging. Thermal and strain cross-sensitivity can sometimes limit their performance in certain sensing applications.

FBGs have found widespread use due to their versatility and reliability, and ongoing research continues to explore new applications and improve their performance characteristics.

Participants

17671A0439	SUPRIYA LORETTA ABEL	P
17671A0441	THATI PAMULA PRABAND KUMAR	P
17671A0442	UPADHYAYULA HIMASREE	P
17671A0443	V.SAI KIRAN GOUD	P
17671A0444	VASIREDDY CHARITHA	P
17671A0445	VISHAL KUMAR	P
18675A0401	APPARI SATISH	P
18675A0402	LASKARI VISHNUSAIRAM	P
18675A0404	BURRA SOUMYA	P
18675A0405	DARIPELLI PRAVEEN KUMAR	P
18675A0406	BANDI RUTHVIK	P
18675A0407	VERUKONDA VYSHNAVI	P
18675A0408	NALLA RAJASHEKAR REDDY	P
18675A0409	A PRASHANTH	P

Roll No	Name of the Student	Attendance
17671A0446	A. MANISHA	P
17671A0447	ALAKA KRISHNA VENI	P
17671A0448	B RAKESH	P
17671A0449	CHIMATA VINAY KUMAR	P
17671A0450	CHINNALACHI RAJASHEKAR	P
17671A0451	GANDAMALLA PAVAN KALYAN	P
17671A0452	GODITHALA VENUGOPALA CHAKRI	P
17671A0453	GOPAGANI VAMSHI	A
17671A0454	GUBBALA SAI PAVANI	P
17671A0455	GUNJARI AKHIL SAI REDDY	P
17671A0456	K MANOJ KUMAR	P
17671A0457	K.MANI	P
17671A0458	KARRI NAGUR BABU	P
17671A0459	KOTTE JYOTHI	P
17671A0460	KURVA URMILA	A
17671A0462	MARPU SINDHU	P
17671A0463	MODUMPALLY THARUN	P
17671A0464	MOHAMMAD SOHEL	P
17671A0466	N.BHARGAV SAI RAJ	P
17671A0467	NEELAKANTAM SAI BABU	P
17671A0468	NEELAM KUMARI	P
17671A0470	NUVVULA SANJANA	P

Towheed.s

CONVENOR
Mr.Rajkumar D Bhure

HOD, ECE
Dr. Towheed Sultana