VIT®

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

AICTE Training and Learning Academy (ATAL)

sponsored 6 days FDP on

Micro and Fiber Optic Sensors

23rd to 28th September, 2024

School of Electronics Engineering (SENSE)

Vellore Institute of Technology,

Vellore

About VIT

VIT was established with the aim of providing quality higher education on par with international standards. It persistently seeks and adopts innovative methods to improve the quality of higher education on a consistent basis. The campus has a cosmopolitan atmosphere with students from all corners of the globe. Experienced and learned teachers are strongly encouraged to nurture the students. The global standards set at VIT in the field of teaching and research spur us on in our relentless pursuit of excellence. In fact, it has become a way of life for us. The highly motivated youngsters on the campus are a constant source of pride. Our Memoranda of Understanding with various international universities are our major strength. They provide for an exchange of students and faculty and encourage joint research projects for the mutual benefit of these universities. Many of our students, who pursue their research projects in foreign universities, bring high quality to their work and esteem to India and have done us proud. With steady steps, we continue our march forward. We look forward to meeting you here at VIT.

About ATAL

AICTE Training and Learning (ATAL) Academy, established by MoE, Govt. of India, holds the vision to empower faculty to achieve goals of higher education such as access, equity and quality. Council understands that there is a need of the day to train the young generation in skill sector and having faculty and technicians to be trained in their respective disciplines with latest tools and technologies.

The main objective of ATAL academy is to plan and help in imparting quality technical education in the country and to support technical institutions in fostering research, innovation and entrepreneurship through training in various emerging areas. It also provides a variety of opportunities for training and exchange of experiences such as workshops, orientations, learning communities, peer mentoring and other FDPs.

About Faculty Development Programme

This faculty development program empowers educators with the knowledge and skills to confidently integrate fiber optic sensor technology into their teaching and research. Participants gain a strong foundation in light manipulation within fibers and its interaction with external stimuli. Through hands-on workshops, they develop the ability to design, implement, and analyze sensor data. This comprehensive program prepares educators to not only enrich their curriculum but also contribute to advancements in this exciting field.

Objectives of FDP

- This faculty development program on fibre optic sensors fosters a research-driven environment among participating faculty and research scholars.
- Participants will gain the expertise to develop a strong understanding of sensor principles, enabling them to design sensors tailored for specific research needs.
- Participants will master techniques to extract meaningful information from sensor data leading to publishable research findings.
- The program equip the participants with the knowledge to propose research projects utilizing fibre optic sensors, increasing their competitiveness for funding from various agencies.

Experts Involved

Dr. Srinivas Talabattula
Professor, IISc Bengaluru

Dr. Sachin Kumar Srivastava
Associate Professor, IIT Roorkee

Dr. Rajan Jha
Professor, IIT Bhubaneswar

Dr. V V Raghavendra Sai
Professor, IIT Madras

Mr. Hitesh Mehta
MD, Eagle Photonics Pvt. Ltd.

Dr. Senthilnathan K
Professor, VIT Vellore

Dr. Mandeep Singh
Asst. Professor, NIT Surathkal

Dr. Srijith K
Asst. Professor, IIITDM, Kancheepuram

Dr. Zachariah C Alex
Professor, VIT Vellore

FDP Application Number : 1714985910
Title of the FDP: Micro and Fiber optic sensors
FDP Start Date : 23.09.2024

FDP End Date: 28.09.2024

Schedule of FDP

Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
9:00 – 9:30 **Inauguration**					
9:30 – 12:00 **Session 1** 1. **Name of the Expert :** *Dr. Sachin Kumar Srivastava* 2. **Designation :** *Associate Professor* 3. **Organization:** *IIT Roorkee* 4. **Experience in Years:** *11* 5. **Topic to be taught:** *Fiber optic plasmonic sensors: Modelling and experiments*	**9:30 – 12:00** **Session 3** 1. **Name of the Expert :** *Dr. Rajan Jha* 2. **Designation :** *Professor* 3. **Organization:** *IIT Bhubaneswar* 4. **Experience in Years:** *15* 5. **Topic to be taught:** *Fiber sensors: Lab to Land and challenges*	**9:30 – 12:00** **Session 5** 1. **Name of the Expert :** *Dr. Srijith K* 2. **Designation :** *Assistant Professor* 3. **Organization:** *IIITDM Kancheepuram* 4. **Experience in Years:** *8* 5. **Topic to be taught:** *Fiber Bragg Gratings: Principles and Applications*	**9:30 – 12:00** **Session 7** 1. **Name of the Expert :** *Dr. Mandeep Singh* 2. **Designation :** *Assistant Professor* 3. **Organization:** *NIT, Surathkal* 4. **Experience in Years:** *6* 5. **Topic to be taught:** *Nanophotonic Devices: Challenges and Opportunities-I*	**9:00 – 1:00** **Industrial visit** 1. **Name of the Organization:** *Biosensors Laboratory, Indian Institute of Technology Madras (Institutions of eminence)* 2. **Complete address with pin code :** *Indian Institute of Technology Madras IIT P.O., Chennai 600 036 INDIA* 3. **Industry Type:** *Institute of National Importance* 4. **Area of specification :** *Fiber optic sensor*	**9:30 – 12:00** **Session 10** 1. **Name of the Expert :** *Mr. Hitesh Mehta* 2. **Designation :** *Managing Director* 3. **Organization:** *Eagle Photonics Pvt Ltd & Fiber Optika Tech Pvt Ltd* 4. **Experience in Years:** *29* 5. **Topic to be taught:** *Distributed Fiber optic sensors.*
12:00 – 1:00 **Article Discussion** **1.Title of the Research Paper:** *Title of the Research Paper : Simulation of a Self-Referenced Meta-Grating Sensor With High Figure of Merit in NIR Communication Window* **2. Name of the journal:** *IEEE Sensors Journal* **3. Year of Publication:** *2023*	**12:00 – 1:00** **Article Discussion** **1.Title of the Research Paper :** *Human Pulse and Respiration Monitoring: Reconfigurable and Scalable Balloon-Shaped Fiber Wearables* **2. Name of the journal:** *Advanced Material Technology.* **3. Year of Publication:** *2023*	**12:00 – 1:00** **Article Discussion** **1.Title of the Research Paper:** *In-vivo studies on PDMS-embedded fiber Bragg grating based smart laparoscopic grasper* **2. Name of the journal:** *Smart Materials and Structures* **3. Year of Publication:** *2024*	**12:00 – 1:00** **Article Discussion** **1.Title of the Research Paper:** *Hybrid Plasmonic Waveguide Based Platform for Refractive Index and Temperature Sensing* **2. Name of the journal:** *IEEE Photonics Technology Letters* **3. Year of Publication:** *2022*		**12:00 – 1:00** **Article Summary**
1:00 – 2:00 **Lunch**	**1:00 – 2:00** **Lunch**	**1:00 – 2:00** **Lunch**	**1:00 – 2:00** **Lunch**	**1:00 – 2:00** **Lunch**	**1:00 – 2:00** **Lunch**
2:00 – 4:30 **Session 2** 1. **Name of the Expert :** *Dr. Srinivas Talabattula* 2. **Designation :** *Professor* 3. **Organization:** *IISC Bangaluru* 4. **Experience in Years:** *26* 5. **Topic to be taught:** *Micro-opto-electro-mechanical sensors*	**2:00 – 4:30** **Session 4** 1. **Name of the Expert:** *Dr. Senthilnathan k* 2. **Designation :** *Professor* 3. **Organization:** *VIT, Vellore* 4. **Experience in Years:** *16* 5. **Topic to be taught:** *Nonlinear Pulse Propagation in Optical Fibers*	**2:00 – 4:30** **Session 6** 1. **Name of the Expert :** *Dr. Zachariah C Alex.* 2. **Designation :** *Professor* 3. **Organization:** *VIT, Vellore* 4. **Experience in Years:** *25* 5. **Topic to be taught:** *Metal oxides coated fiber optic based VOC sensors for Biomedical Applications*	**2:00 – 4:30** **Session 8** 1. **Name of the Expert :** *Dr. Mandeep Singh* 2. **Designation :** *Assistant Professor* 3. **Organization:** *NIT, Surathkal* 4. **Experience in Years:** *6* 5. **Topic to be taught:** *Nanophotonic Devices: Challenges and Opportunities-II*	**2:00 – 4:30** **Session 9** 1. **Name of the Expert :** *Dr. V V Raghavendra Sai* 2. **Designation :** *Professor* 3. **Organization:** *IIT Madras* 4. **Experience in Years:** *20* 5. **Topic to be taught:** *Optical Sensors for Health, Water, and Food*	**2:00 – 4:00** **MCQ & Reflection Journal**
4:30 – 5:30 **Hands on training /Labs** *Modelling of Fiber optic plasmonic sensor using MATLAB*	**4:30 – 5:30** **Hands on training /Labs** *Split-step Fourier Method using MATLAB*	**4:30 – 5:30** **Hands on training /Labs** *Reflection spectrum and sensing properties of FBG using MATLAB*	**4:30 – 5:30** **Hands on training /Labs** *Simulation-based on Plasmonic Device using COMSOL Multiphysics*	**4:30 – 5:30** **Hands on training /Labs** *A hands-on portable modules design*	**4:00 – 5:00** **Valedictory Session**

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Dr. S. Vidhya, HoD, Dept. of Sensor and Biomedical Technology

Coordinators

Dr. Chittaranjan Nayak, Associate Professor, SENSE
Dr. Debashish Dash, Assistant Professor, SENSE

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Guidelines

The FDP will be conducted in physical mode. There will be 12 sessions in the span of six days. One session may be utilized for feedback and assessment. As per ATAL guidelines, no registration fees levied from the participants

Registration Link

Registration is compulsory for the participants. So kindly register before 20th September 2024.

(Registration is limited to 50 participants on First come First serve basis).

For registration, use the following link

Registration ID: **https://atalacademy.aicte-india.org/login**

Eligibility

The AICTE sponsored FDP is open to the faculty members of AICTE approved institutions, research scholars, participants from government, industry (bureaucrats / technicians / participants from industry etc.) and staff of host institution.

Key Dates

Last date for application: **20th Sep 2024**
FDP start-end dates: **23rd Sep 2024 to 28th Sep 2024**

Venues

Event Venue: **TT 312 (smart class room)**
Hands-on / Lab Venue: **TT 144 (Optical laboratory)**