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S. S. Education Trust's

S. G. Balekundri Institute of Technology



Shivabasava Nagar, Belagavi - 590010, Karnataka, India.

Approved by AICTE, New Delhi & Affiliated to VTU, Belagavi

An ISO 21001:2018 Certified Institute | 5 UG Programs are NBA Accredited

CET Code: E175, COMEDK Code: E110, PG CET Code: 942

Dept. of Electronics & Communication Engg. Organizing



*One Week AICTE Training and Learning (ATAL) Academy
sponsored*

Faculty Development Program (FDP) on

Advanced Embedded Systems Using IOT

Thrust Area: Internet of Things

From 15th June – 20th June 2025



ABOUT INSTITUTE

S. G. Balekundri Institute of Technology, (SGBIT) Belagavi is established in the year 2008, by Shri Siddharameshwar Education Trust of Rudrakshimath, Naganur, Belagavi under the presidentship of His Holiness Poojya Dr. Siddharama Swamiji. The trust facilitates General and Technical Education since 1932. SGBIT is committed to integrate morally with education by arranging value addition programmes in Social, Moral & Technical fields contributing to the human resource development needed for the state, nation and the world. It is one of the fastest developing institutes in north part of Karnataka. It is one of the first college in North Karnataka to get ISO 21001:2018 certification. Currently, the institute has seven UG & one PG Programs. The Institutes ECE, CSE, CV, ME, EEE Branches are Accredited by NBA, New Delhi.

ABOUT DEPARTMENT

The Department of Electronics and Communication Engineering was started in the year 2008 with an intake of 60. The intake was increased to 120 in the year 2012. The department has highly qualified, experienced and dedicated staff. The department has established state of the art laboratories like IoT Lab, Arduino Lab & VLSI Lab (with Cadence Design Tool) & Research centre recognised by VTU, Belagavi. The Department has been accredited by the National Board of Accreditation (NBA), New Delhi. The department has also received a Research Fund of Amount 10 Lakh from VTU, Belagavi. Many of the final year projects are funded by KSCST and VTU, Belagavi. One of the final year project was awarded as the Project of the Year by KSCST, Bangalore, Govt. of Karnataka in Academic Year 2020-21. Every year all eligible students are being placed in various reputed companies through campus recruitment.

DEPARTMENT VISION

To be the department of Electronics and Communication Engineering striving hard to develop responsive teaching-learning methodology, research and employable skills in allied fields by empowering students to become globally competent and socially responsible citizens.

DEPARTMENT MISSION

- ✓ To develop an active learning environment that ensures participation of students in both curricular as well as co-curricular activities.
- ✓ To foster research, innovation and creativity amongst students.
- ✓ To encourage development of entrepreneurial skills.
- ✓ To inculcate, amongst students, team-spirit, leadership qualities, positive attitude and effective communication skills to solve societal needs.

ABOUT THE FDP

AICTE Training And Learning (ATAL) Academy is conducting FDP on various thrust areas and emerging trends. Faculty development programs (FDPs) have proven to be successful for improving teaching skills in higher education. The Internet-of-Things (IoT) based smart Embedded systems are used in a wide range of applications including energy, medicine, transportation, and smart cities & homes. The availability of inexpensive embedded devices is the key to the success of IoT. There are several key challenges for IoT systems like real time data access, its analysis & control, low power operation, machine learning, reliability and security. This one-week IoT based smart embedded systems sstp's important aspects like reliability, security of IOT, AI, cloud computing will be conducted in comprehensive and at par with industry needs. The proposed FDP covers all the above aspects & gives an avenue to enhance the skills of faculty & provides an opportunity for the participants to develop solutions for the requirement of stakeholders.

OBJECTIVES: The one-week STTP objectives are, to

- Gain a comprehensive understanding of the core principles and pedagogical techniques of smart embedded system using IOT
- Explore latest topics for embedded systems using IoT like prototype development, testing and validation
- Enable participants to design and conduct internet of things related research projects, fostering innovation and academic contribution To provide an environment for IoT prototype development, testing and validation.
- Promote networking and collaborative learning among participants to share insights, best practices, & research opportunities in IIOT & AI.
- Develop Embedded IoT Solutions & Industry automation techniques.
- Promote start-up community and entrepreneurial ecosystem for IoT.

OUTCOMES: The Participants would be able to:

- Possess deep understanding of core embedded systems using IOT, enabling participants to effectively teach these concepts.
- Explore latest IOT topics such as IIOT, AI, Cloud computing with smart embedded IOT systems, gaining the ability to integrate these into their research and teaching for academic and industrial use.
- Effectively design and conduct innovative IOT-related research projects, applying AI techniques to solve real -world problems across various industries.

- Improve teaching and research, stay updated on IOT data analytics in cloud computing and latest research trends, emerging technologies, and future directions
- Use their expertise and practical experience to improve UG/PG students' learning experience.
- Demonstrate smart embedded IOT systems with simulation and hands on experiments.

CONTENTS:

- Overview of IOT Fundamentals
- Introduction to Embedded IOT
- Basics of Raspberry Pi with Python
- Interfacing of Embedded sensors with Raspberry Pi
- Interfacing of Gadgets with Raspberry Pi
- Upload and Retrieval of IOT Data from the cloud
- Security Measures in IOT
- Industrial IIOT& Role of AI
- Data Visualization using Python
- Computer Vision Using Raspberry Pi
- Visit to Industry

PARTICIPATION CERTIFICATE

- A performance evaluation test will be conducted at the end of the FDP.
- Minimum 80% attendance and scoring 60% marks in tests is mandatory to get the participation Certificate.
- The participation certificate will only be issued online through the ATAL Academy portal to eligible participants

WHO CAN ATTEND

- The Faculty Members of the AICTE approved engineering institutions, research scholars, PG Scholars and staff of the host institution can attend the FDP.

REGISTRATION:

- There is no registration fee.

Link for the registration: Participants are requested to register compulsorily in the following link:

<https://www.aicte-india.org/atal>

OR <https://atalacademy.aicte-india.org/signup>

After registration in the above link submit the scanned copy of the registration form to drsureshakkole.ece@sgbit.edu.in