# DEPARTMENT OF ELECTRONICS, TIST

# (BTech ECE, BTech RA, MTech Wireless Technology)

## SPAN – **S**kill **P**lanning and **A**cquisitio**N** Cell

**SPAN – S**kill **P**lanning and **A**cquisitio**N** Cell continued its activities in the even semester of the academic year 2019-20 to meet its objectives which are to

(i) improve employability of students by exposing them to relevant industry standard platforms

(ii) foster in students and staff the ability to design and implement projects catering to the needs
 of society

(iii) facilitate students and staff to keep up with rapidly changing technologies

(iv) make learning effective and enjoyable

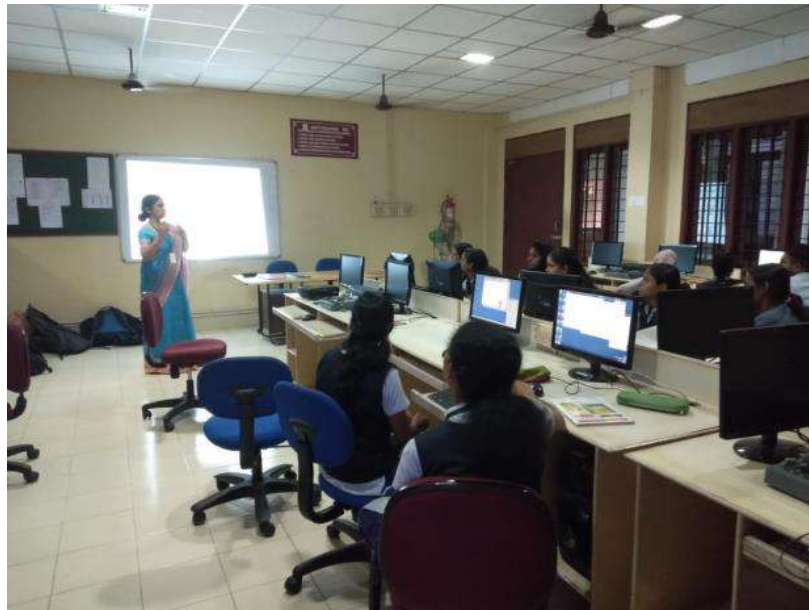However, these activities were interrupted because of the lockdown and restrictions due to Covid19.

### SPAN ACTIVITIES - EVEN SEMESTER (2019-20)

| S. NO. | DATE | PROGRAM | BATCH | NUMBER OF STUDENTS |
|--------|------|---------|-------|--------------------|
| 1 | 17.1.20 | Virtual Instrumentation using LabVIEW | S4 ECE | 15 |
| 2 | 7.2.20 | Introduction to C++ Programming | S6 ECE | 20 |
| 3 | 6.3.20 | Virtual Instrumentation using LabVIEW | S4 ECE | 20 |

| S. NO. | DATE | SCHOOL | PROGRAM |
|--------|------|--------|---------|
| | | **SPAN Programs @ School** | |
| 4 | 29.11.19 | Government Higher Secondary School, Chottanikkara | Technical Social Outreach |

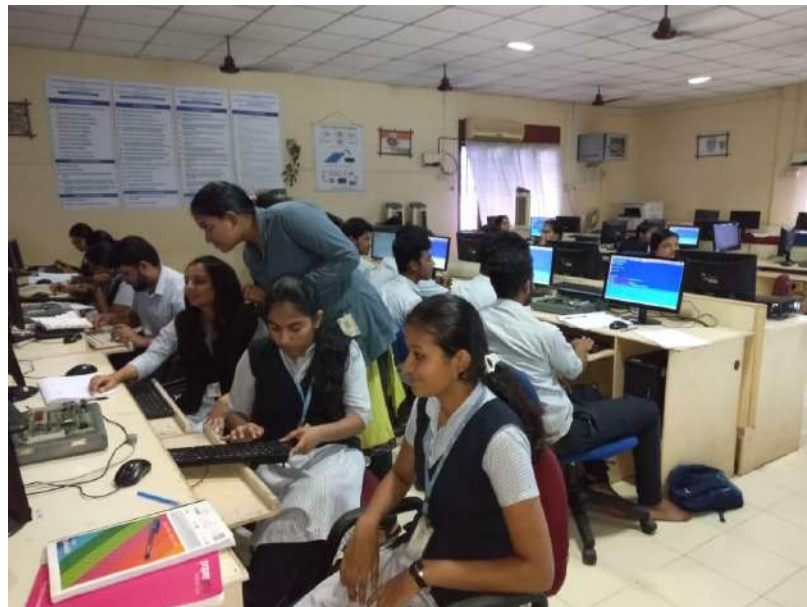# WORKSHOP ON VIRTUAL INSTRUMENTATION USING LabVIEW

SPAN conducted one day workshops to familiarize students with **Laboratory Virtual Instrument Engineering Workbench** (**LabVIEW**). LabVIEW is a system-design platform and development environment for a visual programming language from National Instruments. The objective of the workshop is to enable participants to use Lab VIEW for Virtual Instrumentation. Participants learn to create VIs and use graphical programming for the acquisition, processing and display of analog and digital signals. Graphical decision making structures are used in various applications including signal processing, monitoring and control.

# WORKSHOP ON INTRODUCTION TO C++ PROGRAMMING

The sixth semester ECE Course EC312 Object Oriented Programming does not have a lab associated with it. After identifying this gap in the syllabus, in order to get students started on programming in C++, SPAN conducted a half day introductory workshop on the concepts of C++ programming with a practical orientation. The students were equipped with fundamental skills to enable them to continue practice independently at higher levels of programming.

# SOCIAL OUTREACH

As a part of its **Social Outreach Program,** the **Department of Electronics** conducts **SPAN Programs @ School.**

This technical social outreach initiative aims to create awareness among school students about various innovations and developments in technology and make them focused towards their future goals. The target audience is higher secondary school students. In the sessions, students were introduced to various emerging fields in the area of Electronics & Communication Engineering and were also made aware of the future scope of Electronics in the field of Robotics & Automation. This was followed by a demonstration of a robotic model of "Automatic Reverse Parking" to introduce robotic actuators and sensors. Students were motivated to attend various technical workshops organized in the department to keep pace with rapid advancements in technology.



**Government Higher Secondary School, Chottanikkara (29.11.19)**

**SPAN – Skill Planning and AcquisitioN Cell** introduced several new programs in the odd semester of the academic year 2019-20.

# SPAN ACTIVITIES - ODD SEMESTER (2019-20)

| S. NO. | DATE | PROGRAM | BATCH |
|---|---|---|---|
| | | **SPAN Workshops @ ECE, TIST** | |
| 1 | 26.7.19 | Arduino Microcontroller Board and Applications | Bhavan's Newsprint Vidyalaya, Velloor |
| 2 | 2.8.19 | Python Programming & Image Processing using OpenCV-Python | S7 ECE |
| 3 | 7.8.19 | Mobile Robotics | S3, S5 ECE |
| 4 | 17.8.19 | Arduino Microcontroller Board and Applications | St. Mary's Higher Secondary School, Morakkala |
| 5 | 21.8.19 | Python Programming & Image Processing using OpenCV-Python | S7 ECE |
| 6 | 30.8.19 | Mobile Robotics | S3, S5 ECE |
| 7 | 27.9.19 | Arduino Microcontroller Board and Applications | St. George's H.S.S., Vennikulam |
| 8 | 11.10.19 | Arduino Microcontroller Board and Applications | S1 EC, RA |
| 9 | 16.10.19 | Arduino Microcontroller Board and Applications | S1 EC, RA |
| 10 | 25.10.19 | Arduino Microcontroller Board and Applications | S1 EC, RA |
| 11 | 18.11.19 | Arduino Microcontroller Board and Applications | S7 IT |

| S. NO. | DATE | SCHOOL | PROGRAM |
|---|---|---|---|
| | | **SPAN Programs @ School** | |
| 12 | 5.8.19 | St. Stephens Bes-ania Public School, Chelad, Kothamangalam | Technical Social Outreach |
| 13 | 4.9.19 | Warwin School (Senior Secondary),Vaikkom Kottayam | Technical Social Outreach |
| 14 | 25.9.19 | St.George's HSS ,Vennikulam , Kokkappilly | Technical Social Outreach |

| 15 | 11.10.19 | Govt. HSS Mulanthuruthy | Technical Social Outreach |
|----|----------|-------------------------|---------------------------|
| 16 | 17.10.19 | St. Marys  Higher Secondary School, Thalacode | Technical Social Outreach |
| 17 | 18.10.19 | Chinmaya Vidyalaya, Ernakulam | Technical Social Outreach |
| 18 | 19.10.19 | Bhavan's Munshi Vidyashram | Technical Social Outreach |

## PYTHON PROGRAMMING & IMAGE PROCESSING USING OPENCV-PYTHON

SPAN conducted workshops to introduce students of Semester 7, BTech Electronics and Communication Engineering to Python programming and OpenCV-Python. The workshop was used to familiarize students with various image processing techniques which will enable them to understand the concepts and execute projects involving machine vision.

## MOBILE ROBOTICS

SPAN conducted workshops on Mobile Robotics for the students of Semester3 and 5 Electronics and Communication Engineering. Various types of motors, drivers and sensors were used in the workshop. Students executed several projects based on the mobile robot platform.



## ARDUINO MICROCONTROLLER BOARD AND APPLICATIONS

SPAN conducted workshops to familiarize students of Semester 1, BTech Electronics and Communication Engineering and BTech Robotics and Automation, with the Arduino Microcontroller board and its applications. Students learnt to build circuits that use the analog and digital I/Os of the Arduino board. Serial communication to monitor and control applications, interfacing of sensors and actuators and decision making structures were utilized in various applications. Speed and direction control of motors using various techniques were carried out.

## INTER DISCIPLINARY PROGRAMS

SPAN conducted a workshop on Arduino Microcontroller Board and Applications for students of Semester 7, Information Technology students. This was arranged as a supplement to their course on Embedded Systems. Both hardware and software aspects were covered at a senior level which gave the students an experience of interdisciplinary projects.

# SOCIAL OUTREACH

As a part of the **Social Outreach Program of the Department of Electronics and Communication Engineering** two types of activities were conducted this semester.

**(i) SPAN Workshops for School Students**

SPAN conducted workshops on Arduino Microcontroller Board and Applications at the school level. This is an effort to bridge the gap between school education and engineering education enabling school students to undertake interesting technical projects. Students were also introduced to mobile robots based on the Arduino platform and learnt how to control the movement of these robots.





**Bhavan's Newsprint Vidyalaya, Velloor (26.7.19)**

**St. Mary's Higher Secondary School, Morakkala (17.8.19)**



**St. George's H.S.S., Vennikulam (27.9.19)**

**(ii) SPAN Programs @ School**

This technical social outreach initiative aims to create awareness among school students about various innovations and developments in technology and make them focused towards their future goals. The target audience is higher secondary school students. In the sessions, students were introduced to various emerging fields in the area of Electronics & Communication Engineering and were also made aware of the future scope of Electronics in the field of Robotics & Automation. This was followed by a demonstration of a robotic model of "Automatic Reverse Parking" to introduce robotic actuators and sensors. Students were motivated to attend various technical workshops organized in the department to keep pace with rapid advancements in technology.

**St. Stephens Bes-ania Public School, Chelad, Kothamangalam (5.8.19)**



**Warwin School (Senior Secondary),Vaikkom Kottayam (4.9.19)**



**St.George's HSS ,Vennikulam , Kokkappilly (25.9.19)**

**Govt.HSS Mulanthuruthy (11.10.19)**



**St. Marys  Higher Secondary School, Thalacode (17.10.19)**



**Chinmaya Vidyalaya, Ernakulam (18.10.19)**

**Bhavan's Munshi Vidyashram (19.10.19)**

**SPAN Team Members**

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