



SOUTH EAST ASIAN EDUCATION TRUST (R)
SEA COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by All India Council for Technical Education (AICTE), New Delhi)

ACCREDITED By NAAC: Grade: B++

Affiliated to Visvesvaraya Technological University (VTU), Belagavi, Recognised by Government of Karnataka)



Workshop Report

On

“CNC Machine Design and Development”

Workshop Title= “CNC MACHINE DESIGN AND DEVELOPMENT”.

Conducted by= Mechanical Engineering Department-S.E.A.C.E.T

Resource persons= Mr. Harsha jeeth M - Technical Head Engineer
Ms. Ashwini M M - Technical Head Engineer
Ms. Swati S Chikmath - Technical Support Engineer
Ms. Shrenika R M - Technical Support Engineer

Workshop coordinators= Prof. Rajesh N
Prof. Anand Kumar V

Date= 27th Sep & 01 Oct 2019

Venue= SEACET Mechanical CIM Lab & AC seminar hall

Workshop Outcomes:

- ✓ G-code Analysis and implementation skills which will be helpful to have smart control.
- ✓ Clear understanding about working principle of Stepper-motor and servo-motor with driver circuit.
- ✓ Individual circuit testing skills, trouble shooting and integration of multiple actuators with processor / controller.
- ✓ Explore to architecture of microcontroller. (Arduino Uno).
- ✓ Embedded system program writing skills.
- ✓ Concept to Product development skills.
- ✓ Exposure about “Ink-Scape” (G-Code Generation Tool).
- ✓ Exposure about “GRBL Controller”(G-Code Execution Tool).

Workshop Detail Summery

S.E.A College of Engineering & Technology and Indian Tech-Key organized five-Days Workshop on “**CNC Machine Design and Development**” on 27/09/2018 to 01/10/2018 in mechanical department, SEACET. The programme is organized by **Mr. Rajesh N, & Mr. Anand kumar V** assistant professor in Mechanical Engg., of SEA College of Engg., & Technology.

On day one the programme was started with inaugural function.



Course Objectives:

The objective of this program is to introduce CNC Machine design and development of an application to draw 2D Diagrams from scratch level. Participants will explore to working principle of stepper motor, servomotor, integration of stepper motor of X & Y with processor/controller and Integration of driver circuits and embedded system programming. Prior to CNC body building participants will get exposure Arduino Uno Micro-controller architecture with embedded system coding. Later sessions will be followed by G-CODE Writing, G-CODE generation for Texts, Images or CAD designs by using software.

Course Content

Day1: Module 1 Students were thought basic on Power of Arduino in the Morning session 4 Hrs 30 Mins and in the Afternoon Session basics Stepper motor and Servo Motor application 2 Hrs 30 Min.

Day2: Once the basics is been thought in the day 1 the module 2 was started on the second day here the students started learning from the scratch about Embedded system and coding for Arduino-Uno and G-Code & M-Code Applications. Morning session 4 Hrs 30 Mins. In after-noon Session parts required for Body building for CNC Machine. Session of 2 Hrs 30 Mins.

Day3: The body building of CNC Machine was continued in the Morning Session after finishing. The Module-3 was started teaching the students about Exercise on “Ink Scape” and “GRBL Control” Tool for 3 Hrs 30 Mins.

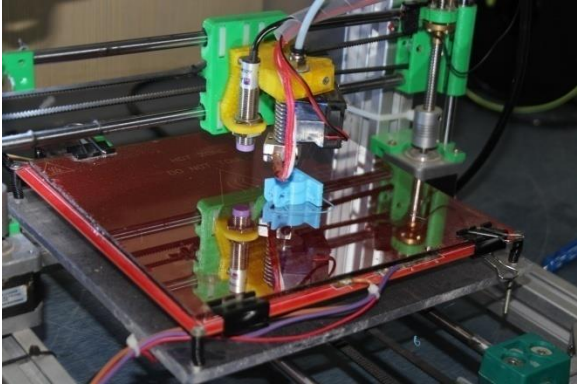
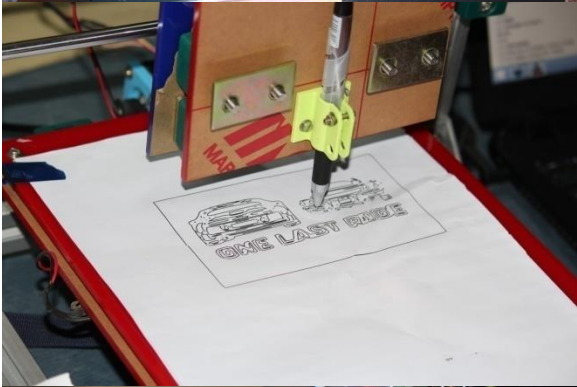
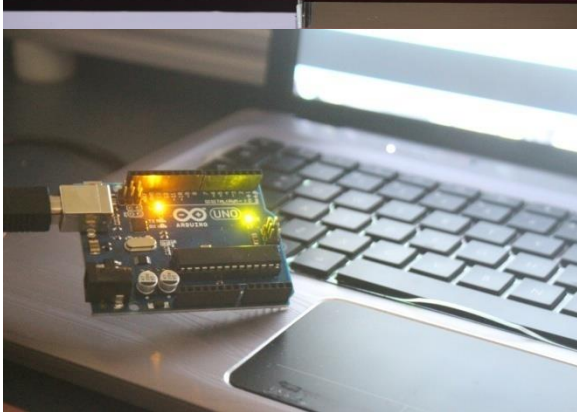
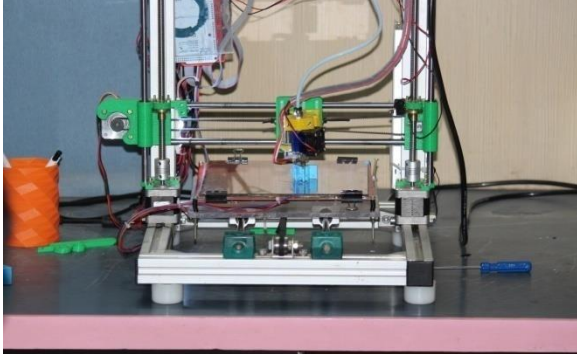
In the after-noon Session the Final CNC Machine Testing for 2D Plotter application System. Was done by each individual groups the session was continued up to 2 Hrs 30 Min

Day4: Once the testing of the machine the students the module 4 was on G Code writing and the Introduction to Design Spark Mechanical and working in it. Here students understand the theoretical and practical relation and started writing their own programs

Day5: On the last day the personality development and industrial skills enhancement technique were thought to students.

Photos of the Five-Days Workshop on “CNC Machine Design and Development” of Students from the Department of Mechanical Engg.







Total No. Of students attended- 35Students