

K.L.N. COLLEGE OF ENGINEERING

POTTAPALAYAM-630612



DEPARTMENT OF MECHANICAL ENGINEERING

(Accredited by NBA, New Delhi)



ORGANIZES

THREE DAYS SKILL DEVELOPMENT PROGRAM

on

HANDS ON TRAINING IN CNC MACHINES AND MATLAB

23 – 25 January 2018

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ABOUT CNC MACHINES AND MATLAB

CNC (Computer Numerical Control) is the general term used for a system which controls the functions of a machine tool using coded instructions processed by a computer. A part program is written, using G and M codes. This describes the sequence of operations that the machine must perform in order to manufacture the component. This program can be produced off-line, ie, away from the machine, either manually or with the aid of a CAD/CAM system.

The part program is loaded into the machines computer, called the controller. At this stage, the program can still be edited or simulated using the machine controller keypad/input device. The machine controller processes the part program and sends signals to the machine components directing the machine through the required sequence of operations necessary to manufacture the component. The application of CNC to a manual machine allows its operation to become fully automated. Combining this with the use of a part program enhances the ability of the machine to perform repeat tasks with high degrees of accuracy.

MATLAB is a high-level programming language for technical computing. The name MATLAB stands for **matrix laboratory**. MATLAB is developed by MathWorks. MATLAB can be used for math computations, modeling and simulation, data analysis and processing, visualization and graphics and algorithm development. In industry this software used in research, development and design. MATLAB has optional tool boxes that are a collection of specialized programs to solve specific types of problems

COURSE CONTENTS

1. Introduction of CNC Machines
2. Types of CNC Machines
3. Manual Part programming of CNC Lathes
4. Offline Simulation of CNC Lathe Program
5. Manual Part Programming of CNC Milling
6. Offline Simulation of CNC Milling Program
7. Hands on Training on CNC Lathe M/c
8. Hands on Training on CNC Milling M/c
9. Introduction to MATLAB
10. MATLAB as calculator
11. Creating arrays
12. Mathematical operations with arrays
13. Script files
14. Programming in MATLAB
15. 2D plotting
16. 3D plotting
17. Tutorial problems