Course Objective

- To understand the basics of NC, CNC and DNC systems and to compare them.
- To develop the part programs for components to be machined on CNC machining and turning centres

Value Added Course

CNC MACHINING AND PROGRAMMING

Contents

Module 1: Numeric Control System :

Introduction to numerical control,

NC components,

NC coordinate systems,

Point to point, lined and contouring systems,

open and close loop control system,

Steps in NC manufacturing, Advantages,

Disadvantages and Applications of NC,

Trends and developments in NC,

Role of NC/CNC technology in modern manufacturing,

Advance Features of CNC machining centre and CNC turning centre

Module 2: Objects- Input media for NC machines

Types of input media, punched tape,

program tape composition and coding format,

Tape reader

Module 3: Objects- CNC and DNC Systems

Problems with conventional NC,

Introduction to computer numerical control,

Functions and Features of CNC,

Difference between NC and CNC,

Advantages, Disadvantages and Applications of CNC

DNC System,

Components of a DNC system, Types of DNC,

Functions of DNC, Advantages of DNC,

Module 4: Part Programming Fundamentals and Practice

Part programming fundamentals,

Manual part programming,

Partprogram composition,

Preparatory functions,

Miscellaneous functions,

Tool length compensation,

Canned cycles,

Cutter radius compensation,

Part programming for CNC Machining Centre and CNC Lathe

Part programming practice in CNC Lab

Duration 12 weeks course, 2 lectures and 2 practicals per week for 10 weeks

Total 40 contact hours

Faculty

Dr. Tilak Raj, Professor (Mechanical Engineering)
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Skill Set Gain / Employability Opportunity

1. **Skill enhancement in CNC part programming**
2. **Candidates can work as CNC programmers in Industry**
3. **Candidates can work as CNC application engineers in Industry**

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