

# **C.N.C MILLING SYLLABUS**

## **PART 1**

### **➤ INTRODUCTION OF CNC MACHINES**

- **VIDEOS**
- **ANATOMY OF MACHINES**
- **AXIS NOMENCLATURE**
- **WORKING METHODS**
- **CLAMPING METHODS**
- **TOOLS & TOOL HOLDERS**
- **ADVANTAGES OF CNC**

### **➤ BASIC 2D & 3D DRAWINGS**

- **EXPLANATION OF DRAWINGS**

### **➤ TOOLS AND TOOL HOLDERS SELECTION**

- **ANOTOMY OF TOOLS AND TOOL HOLDERS**
- **TOOLS NOMENCULTURE**
- **VIDEOS OF ALL TOOL HOLDERS**

### **➤ INTRODUCTION OF PART PROGRAMMING**

- **PROGRAMMING STRUCTURE**
- **SPECIAL CHARACTERS / LETTERS**

### **➤ INTRODUCTION OF M-CODES & G-CODES**

- **EXPLAIN OF ALL CODES**

## **PART - II**

**G00 - RAPID POSITIONING MOTION**

**G01 - LINEAR INTERPOLATION MOTION**

**EXERCISE**

**G02 - CIRCULAR INTERPOLATION CLOCKWISE**

**G03 - CIRCULAR INTERPOLATION ANTI-CLOCKWISE**

**EXCERCISE**

### **➤ FACING**

- **EXCERCISE**

➤ **END MILL INTRODUCTION**

- **EXCERCISE**

➤ **I-J MARKING**

- **INTRODUCTION OF I-J-K METHOD**
- **WHY USING I-J-K METHOD**
- **EXCERCISE**

➤ **I-J END MILL**

- **EXCERCISE**

➤ **SUB PROGRAMMING M98 & M99**

- **EXCERCISE**

➤ **ROUND TO SQUARE**

**PART - III**

➤ **CANNED CYCLE INTRODUCTION**

- **6 STEPS IN CANNED CYCLE**

➤ **DRILLING CYCLE**

- **G81 EXCERCISE**
- **G82 EXCERCISE**
- **G83 EXCERCISE**
- **G73 EXCERCISE**

➤ **BORING CYCLE**

- **G85 EXCERCISE**
- **G86 EXCERCISE**
- **G88 EXCERCISE**
- **G89 EXCERCISE**
- **G76 EXCERCISE**

➤ **BACK BORING CYCLE**

- **G87 EXCERCISE**

➤ **THREADING CYCLE**

- **G74 EXCERCISE**
- **G84 EXCERCISE**

## **CNC TURNING SYLLABUS**

### **PART 1**

★ INTRODUCTION OF CNC MACHINES

○ VIDEOS

○ ANATOMY OF MACHINES

○ AXIS NOMENCLATURE

○ WORKING METHODS

○ CLAMPING METHODS

○ TOOLS & TOOL HOLDERS

★ BASIC 2D & 3D DRAWINGS

★ TOOLS AND TOOL HOLDERS SELECTION

★ FEED/SPEED CALCULATIONS

★ INTRODUCTION OF M-CODES & G-CODES

★ INTRODUCTION OF PART PROGRAMMING

### **PART - II**

★ FACING

○ EXERCISE

★ TURNING

○ EXERCISE

★ STEP TURNING

○ EXERCISE

★ CHAMFERING & TAPER TURNING

○ EXERCISE

★ CHAMFERING ANGLE METHOD

○ EXERCISE

★ RADIUS USING G02/G03

○ EXERCISE

★ COMBINATION ALL TYPE OF DRAWINGS

○ EXERCISE

<b>PART – III</b>
★ BORING
○ EXCERCISE
★ STEP BORING
○ EXCERCISE
★ GROOVING OD
○ EXCERCISE
★ GROOVING ID
○ EXCERCISE
★ TNRC LEFT & RIGHT & CANCEL G40,G41,G42
○ EXCERCISE
★ TNRC USING OD
○ EXCERCISE
★ TNRC USING GROOVING ID & OD
○ EXCERCISE
<b>PART - IV</b>
★ CANNED CYCLE INTRODUCTION
★ TURNING CYCLE G71
○ EXCERCISE
★ FACING CYCLE G72
○ EXCERCISE
★ FINISHING CYCLE G70
○ EXCERCISE
★ PATTERN REPEATING CYCLE G74
○ EXCERCISE
★ PECK DRILLING CYCLE G74
○ EXCERCISE

<b>★ GROOVING CYCLE G75</b>
○ EXCERCISE
<b>★ THREAD CUTTING CYCLE G76</b>
○ EXCERCISE
<b>★ BOX TURNING G77</b>
○ EXCERCISE
<b>★ THREADING CYCLE G78</b>
○ EXCERCISE
<b>★ BOX FACING CYCLE G79</b>
○ EXCERCISE
<b>PART – V</b>
<b>★ REMAINING M-CODES &amp; G-CODES</b>
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<b>★ PROFILE CALCULATION</b>
○ USING PYTHAGORAS THEROM
<b>★ PROBLEM SOLVING TECHNIQUES</b>