KAMARAJ®
COLLEGE OF ENGINEERING & TECHNOLOGY

(**An Autonomous Institution** - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)

S.P.G.Chidambara Nadar - C.Nagammal Campus

S.P.G.C. Nagar, K.Vellakulam – 625 701 (Near **VIRUDHUNAGAR**).

DEPARTMENT OF MECHANICAL ENGINEERING

Content	Details
Academic Year	2024-2025 (EVEN Semester)
Date	20.01.2025 to 25.01.2025 (6 Days)
Name of the Value-added course	CNC Milling & Turning
Duration	48 Hours
No of Credit	3 Credit
Category	Theory (15 Hours) and Lab (33 hours)
Organized by	NTTF, Training Centre, Bangalore
External Coordinator	Mr. G Jayakumar, Manager – Training, NTTF, Bangalore
Three Member Committee Members	1. Dr. S. Thanga Kasi Rajan, ASP& HoD/Mech 2. Er. R.Sakthivel Murugan, AP/Mech 3. Er. N. R. Madhan, AP/Mech
Internal Coordinators	1. Er. N. R. Madhan, AP/Mech 2. Er. R.Sakthivel Murugan, AP/Mech

N.R

Coordinators

12/02/25

HoD/Mech

N.J 13/2/25

Chief Coordinator Academic core

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DEPARTMENT OF MECHANICAL ENGINEERING

Value Added Course

on

CNC Milling & Turning

Academic Year	:	2024-2025 (EVEN Semester)
Date / Days	:	20.01.2025 to 25.01.2025 (6 Days)
Duration	:	48 Hours
Organized by	:	NTTF, Training Centre, Bangalore

Coordinators

12/02/25

HoD/Mech

13/2

Chief Coordinator Academic core

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COLLEGE OF ENGINEERING & TECHNOLOGY

25 YEARS 1998 - 2023

(An Autonomous Institution - Affiliated to Anna University, Chennai)
S.P.G.Chidambara Nadar - C. Nagammal Campus,
S.P.G.C. Nagar, K. Vellakulam - 625 701 (Near VIRUDHUNAGAR).

APPROVAL BOOK

Book No. MECH

SL. No. 25

Date : 02-01-24

Sub: Requisition to approve Value Added Course - Reg.

NAME of the Program : CNC Programming
Year & Branch : II Year Mechanical
No of Students : 26 students
Type : Residential Training
Place : NTTF, Electronic city, Bangalore.
No of Days : 6 Days
Tentative Dates : Jan 20 - Jan 25, 2025
Amount : Rs. 2000/student → Training Charges (Training charges only)
Rs. 1600/ student → Food & Accomodation

Approval of Training charge (Rs 2000/student) may please be sanctioned for VAC course. Remaining amount will be based by students. Charges.

R. Chakthi Vel
(R. SAKTHI VEL MURUGAN, AP/MECH)
Signature of Staff

HOD 02/01/25

PRINCIPAL 6/1/25

OFFICE USE

1) Account Head : Value added Courses.
2) Budget allotted :
3) Amount committed / Spent sofar :
4) Balance available :

O.M.

Secretary

N.a.

R. Chakthi

S. Thiru Gnanam

EDUTECH NTTF INDIA PVT LTD
23/24, II PHASE
PEENYA INDUSTRIAL AREA
BANGALORE
State Name : Karnataka, Code : 29
CIN: U74140KA2007PTC042217
E-Mail : nttfacts@nttf.co.in
Phone : 9844389168

Receipt No : **BTC/24-25/BR/SBI - 7135/139** Receipt Dt. : **22-1-2025**
Received from : **KAMARAJ COLLEGE OF ENGG & TECH**
In settlement of the following : **KAMARAJ COLLEGE OF ENGG & TECH-Being the Training Charges on Value added course on CNC Milling & Turning**

Description	Amount
OTHER INCOME - TRAINING	**46,800.00 Cr**

Total : 46,800.00

Rupees : ***INR Forty Six Thousand Eight Hundred Only***
By Cash / Cheque / DD No : ***25022492232 / 22-Jan-25 , , ,***
Drawn On : **Tamilnad Mercantile Bank (India) / Bangalore , , ,**

For EDUTECH NTTF INDIA PVT LTD

M/s. EDUTECH NTTF INDIA PVT. LTD.
#23/24, 2nd Phase, Peenya Industrial Area,
BANGALORE-560 058.

GOPALA@NTTF.CO.IN
Authorised Signatory

Outlook

Circular: Value-Added Course on CNC Milling & Turning

From Sakthivel Murugan.R <sakthivelmuruganmech@kamarajengg.edu.in>
Date Thu 1/9/2025 6:13 PM
To 23UME <23ume@kamarajengg.edu.in>
Cc Madhan.N.R <madhanmech@kamarajengg.edu.in>; HODMECH <hodmech@kamarajengg.edu.in>

Dear Students,

Dear Students,

I am pleased to inform you that the value-added course for your batch has been finalized. Below are the details:

Value-Added Course Title: CNC Milling & Turning
Duration: Six Days (Residential)
Dates: January 20–25, 2025
Location: NTTF Bangalore

Important Note: Accommodation and food expenses will be borne by the students.

All second-year Mechanical students are required to participate in this value-added program without fail. Your attendance and active participation in this program are mandatory.

Thank you for your cooperation, and we look forward to your enthusiastic participation.

With Regards,

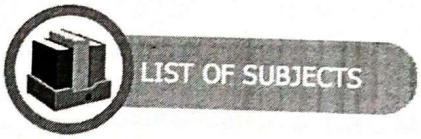
Mr R Sakthivel Murugan,
Assistant Professor,
Department of Mechanical Engineering ,
Kamaraj College of Engineering and Technology (Autonomous),
S.P.G.C Nagar, K.Vellakulam- 625 701, Madurai District.
Mobile : +91 9600634468
www.kamarajengg.edu.in

NTTF
Securing your Future with your own Hands

NETTUR TECHNICAL TRAINING FOUNDATION

INTERNSHIP PROGRAM – CNC PROGRAMMING

Syllabus for Engineering Student



CNC PROGRAMMING

Hours per Semester	48 h

General Objectives:

1.0 Awareness on CNC
2.0 Familiarise CNC Machine Hardware and its functions
3.0 Familiarise with Cutting Tools used in CNC
4.0 Awareness on Basic Operations of CNC Machine
5.0 Familiarise CNC Turning Operations
6.0 Familiarise CNC Milling Operations
7.0 Familiarise CNC Part Programming - Manual and Simulation
8.0 Assessment

Topics:

Sl. No.	Major Topic	Allotted Hour
1.0	Introduction to CNC	2 h
2.0	CNC Hardware basics	2 h
3.0	Cutting Tool and Cutting Tool Parameters	2 h
4.0	CNC Operation	2 h
5.0	CNC Turning	2 h
6.0	CNC Milling	2 h
7.0	Part Programming - CNC Turning and CNC Milling	20 h
8.0	Exercise/Assessment	16 h
	Total	**48 h**

Detailed Syllabus:

1.0 Introduction to CNC
1.1 Introduction, Application and Advantages of CNC
1.2 Classification of CNC Machine - Feedback System, Motion Control System

2.0 CNC Hardware basics
2.1 Spindle Drives (Servo motors, Stepper Motors)
2.2 Automatic Tool Changer
2.3 Automatic Pallet Changer
2.4 Automatic Swarf Removal Mechanism
2.5 Work Holding and Tool Holding Devices

3.0 Cutting Tool and Cutting Tool Parameters
3.1 Cutting Tool Parameters - Tool Diameter, Surface Speed, Spindle Speed, Feed Rate and Depth of Cut
3.2 Tool Selection Criteria for PMKNSH Materials - referring catalogues

4.0 CNC Operation
4.1 CNC Safety
4.2 Power ON / OFF
4.3 Emergency Stop - Reset
4.4 CNC Set up and Operation
4.5 Offset and Settings
4.5.1 Machine Offset
4.5.2 Tool Length Offset
4.5.3 Fixture Offset
4.6 Loading of Tools
4.7 Loading of CNC Program
4.8 Running of CNC Program

5.0 CNC Turning
5.1 Tools used in CNC Lathe
5.2 CNC Turning Operations

6.0 CNC Milling
6.1 Tools used in CNC Milling
6.2 CNC Milling Operations

7.0 Part Programming - CNC Turning and CNC Milling
7.1 Preparatory Codes
7.2 Miscellaneous Codes or Machine Codes

8.0 Exercise/Assessment

Course Outcome

1. Explain the basic principles and significance of CNC technology in modern manufacturing.
2. Recognize the key hardware components of CNC machines and describe their roles in machining operations.
3. Demonstrate knowledge of different cutting tools used in CNC machining and their applications in turning and milling processes.
4. Execute fundamental CNC machine operations, including setup, tool selection, and workpiece handling, for both turning and milling.
5. Create CNC part programs manually and verify their accuracy through simulation before execution.

009.04.03 : Value Added Courses offered if any

Specify the Value added courses conducted in the department.

Dr.S.Thangakasirajan HOD/Mech informed to BoS members that the following value added courses are offered for Mechanical Engineering students and the ratification needed

to include the credits earned by students from value added courses as over and above credits.

Sl.No.	Name of the Course	Year	Offered by	Date	No of Students
1	CATIA	III/Mech	INVENTATEC, Chennai	31.07.2023 to 05.08.2023	42
2	CAD using UG - NX	II/Mech	CIPET, Madurai	13.02.2024 to 19.02.2024	31
Proposed List of Value Added Course for upcoming Semester: CAD Tool, CAE Tool, CNC Coding, GD&T, HVAC, and Piping Engineering.					

All the BoS members ratified and approved the same.

Coordinators

HoD/Mech

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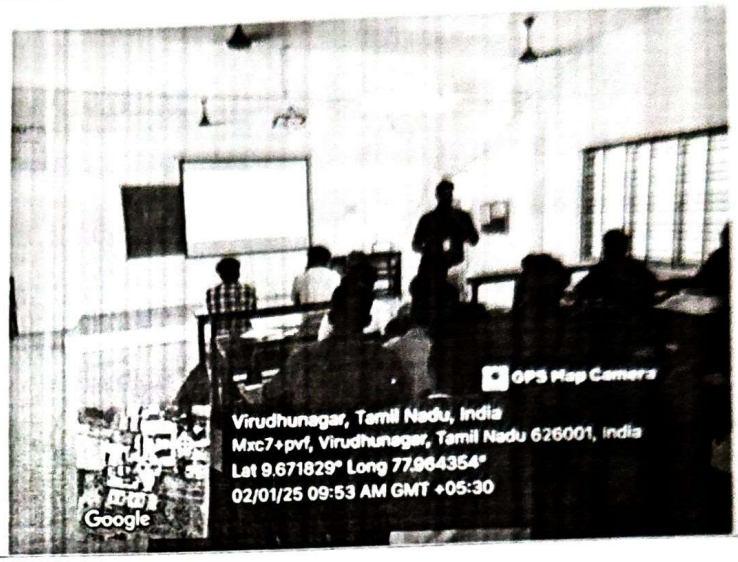
DEPARTMENT OF MECHANICAL ENGINEERING

Three-member committee meeting for value added course selection

Agenda		Value Added Course Selection Meeting
Date	:	02.01.2025
Time	:	09.10 AM
Venue	:	E14 Hall, Academic Block Four, Third Floor
Members Present	:	**Three Member Committee Members** 1. Dr. S. Thanga Kasi Rajan, ASP& HoD/Mech 2. Er.R.Sakthivel Murugan, AP/Mech 3. Er. N.R. Madhan, AP/Mech **Chairperson** 1. Er.R.Sakthivel Murugan, AP/Mech **Co-ordinators** 1. Er. N.R. Madhan, AP/Mech 1. Er.R.Sakthivel Murugan, AP/Mech **Class representative (2023 – 2027 Batch)** 1. Mr. Karthickeyan. M (23UME006), II Year/ Student 2. Mr. Sahi. D. V. (23UME014), II Year/ Student 3. Mr. Varuneshbalaa. M (23UME024), II Year/ Student 4. Mr. Shivakumaar. M (23UME029), II Year/ Student
Minutes of the Meeting	:	It is optional to complete a Value-Added Course for Regulation 2021. In this regard a three-member committee has been formed and a meeting is organized to select the course for registration. • Meeting started by 09.10 AM. Dr. S. Thanga Kasi Rajan, Associate Professor & Head of the Department, welcome the gathering. He has advised to maintain SOP for value added course. • Er. N. R. Madhan, Assistant Professor & Value-added course incharge has proposed course offered by o NTTF, Peeneya, Bangalore offering CNC. • Based on the suggestion and feedback given by the 2021-2025 & 2022-2026 Batch students, 3 committee members for Value added course and student representative, "CNC" course is agreed to take in this IV semester for 2023-2027 Batch students. Courses were selected by the students based on their interested. **Justification for the Courses selection:** The justification for the course selection were as follows i. These courses will be useful for their project work ii. It is a 48-hour courses (3 Credits) iii. These courses are useful to meet the Industrial Needs iv. These courses are in emerging areas.

Proof		

Three Member Committee Members
Dr. S. Thanga Kasi Rajan. ASP & HoD/Mech
Er.R.Sakthivel Murugan. AP/Mech
Er. N.R. Madhan. AP/Mech

Chairperson
Er.R.Sakthivel Murugan. AP/Mech

HoD/Mech

Dean Academics