KRISHNASAMY
College of
ENGINEERING & TECHNOLOGY
Approved by AICTE & Affiliated to Anna University

Anand Nagar, Nellikuppam Main Road, S. Kumarapuram, Cuddalore - 607 109, Tamil Nadu.

☎ (04142) 285 601 - 604   ⊕ www.kcet.in   ☒ info@kcet.in

DEPARTMENT OF MECHANICAL

06.07.2023

CIRCULAR

Ref.: KCET/MECH/VAC/CIRCULAR/2022-23/01.

The following Value Added Course will be conducted during the academic year 2022-2023. The course will be conducted from 17.07.2023 to 21.07.2023. Students are instructed to register their names in the course allotted to them.

Note: Students are instructed to attend the program without fail.

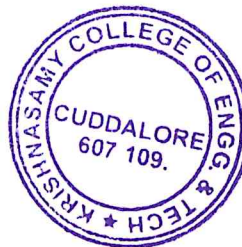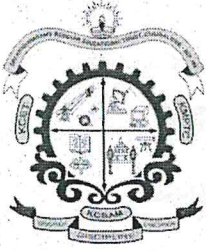| S.No.	Course Code	Name of the Course	Year	No. of Period	Course Coordinator
1	ME-VAC2203	CNC FUNDAMENTALS	II & III	30	Er.L.Purushothaman, Asst.Prof

HOD/MECH

Copy to:

Class Room

Class In charge

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SYLLABUS

Subject Code/ Subject Name: ME-VAC2203- CNC FUNDAMENTALS

Duration: 30 Hours

COURSE OBJECTIVES

➤ To impart knowledge on the fundamentals of numerical control, tools, cutting parameters and work holding devices of CNC machine tools.

➤ To familiarize with CNC part programs for turning and machining centers for given components.

➤ To develop the skill to perform verification tests on CNC machines.

MODULE I : TURNING	6

CNC Turning Centers, Operations performed on a CNC Lathe, Types of Machine operations Turning, Facing, Drilling, Threading, and Cutting Off. Collets, Three Jaw Chucks, Four Jaw Chucks. Lubricants and Coolants, Cutting Tools and Applications

MODULE II : TOOL GEOMETRY	4

Metal Cutting, High Speed, Carbide, Coating Materials

MODULE III : NUMERICAL CONTROL CNC MILLING PROCESS	8

Safety, CNC History, The Critical Components that Comprise, CNC Milling Machine. Vertical CNC Mills, Horizontal CNC Mills, Milling Machine Coordinate System, Incremental and Absolute Programming, CNC Milling Machine Tool Configurations.
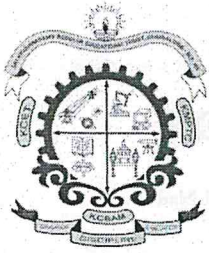
MODULE IV : MILLING OPERATIONS	6

Face Milling and End Milling, Drilling, Type of Operations, Center Drilling, Basic Drilling, Reaming, Counter sinking, Counter Boring, Spot Facing.

MODULE V : PROGRAMMING MACHINING CENTERS	6

Planning and Programming, G and M Codes, Tool Length Offset, CNC Controls Modes, Manual Mode, Edit Mode, MDI Mode, Single Block, Auto Mode, Emergency Stop

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Total No. of Periods   30

COURSE OUTCOMES

- Ability to perform complex and intricate cutting operations without human interference.

- To understand the ATC changes tools on a CNC machine to fit the task being performed and is controlled by G-code commands.

REFERENCES

- Automation, Production Systems, and Computer –Integrated, Manufacturing by Mikell P. Groover

- CADCAM Principles, Practice and Manufacturing Management by Chris McMahon and Jimmie Browne.

- Computer Control of Manufacturing Systems - Yoram Koren.

- Manuals of CNC Machines (Denford), , Manuals of MasterCAM

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