Bharath
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
(Declared as Deemed - to - be - University under section 3 of UGC Act 1956)

Requisition Letter

Date: 26.01.2022

From

The HOD,

Department of Mechanical Engineering,

Bharath Institute of Higher Education and Research,

Selaiyur, Chennai.

To

The Dean Engineering,

Bharath Institute of Higher Education and Research,

Selaiyur, Chennai.

Respected Sir,

Sub: Requisition for conducting Value added course – reg.

School of Mechanical Sciences has planned to conduct Value added course on "Skill Development on CNC Lathe Machine" on 18-02-2022. In this regard we kindly request you to grant permission for the same.

Thanking You

HOD/MECH

Dean Engineering

Head of the Department
Department of Mechanical Engineering
Bharath Institute of Higher Education and Research
(Dec.u/s 3 of UGC Act.1956)
Selaiyur, Chennai-600 073

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Date: 01.02.2022

Department of Mechanical Engineering

Circular

The of Department of Mechanical Engineering, BIHER glad to conduct on six days value added program on "***Skill Development on CNC Lathe Machine***" from **18.02.2022** for 30 hours. Those who are interested to participate do register your name to the program coordinator.

All reregistered students must attend all the classes without fail. The students who are completed the course successfully with good score will get the course completion certificate from the institute/Department.

Resource person: Mr.S.Thirumavalavan and Mr.V.Srinivasan

Maximum no. of registration Allowed – 60.

***First come first serve basis.**

Department of Mechanical Engineering
BHARATH INSTITUTE OF HIGHER EDUCATION AND RESEARCH
Chennai-600 073

Program coordinator

Mr.R.Sabarish

Mr.S.Manavalan

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Department of Mechanical Engineering

Skill Development on CNC Lathe Machine

OBJECTIVE:

- This course is intended for manufacturing students to broaden their knowledge domain regarding state of the art machining operations. Numerical technology provides accuracy and extra strength. Knowledge and skills regarding modern manufacturing systems that use CNC technology are emphasized.

COURSE OUTCOMES:

- The theory should be taught and practical should be carried out in such a manner that students are able to acquire required learning outcomes in cognitive, psychomotor and affective domain to demonstrate following course outcomes:

✓ i. Identify different axes, machine zero, home position, systems and controls CNC machines.
✓ ii. Select, mount and set cutting tools and tool holders on CNC.
✓ iii. Prepare part programmers' using ISO format for given simple components with and without use of MACRO, CANNED CYCLE and SUBROUTINE using ISO format.
✓ iv. Interface software application for auto part programming. v. Apply maintenance practices for CNC machines.

[DAY: 1]

MODULE 1 Industrial Safety &Practices **(5Hrs)**

Industrial Safety Practices: Introduction – Safe guarding methods – Safety in Workshop - Common methods of protection in workshop.

Engineering Drawing: Engineering drawing – Limits, fits and Tolerance (Dimensional and Geometrical tolerance), Surface finish representation. Symbolic representation of Wheels, Gears etc Basics on Orthographic views from isometric views of machine parts / components. Dimensionings, Sectioning.

Shop Theory: Work holding devices, setting & dialling of work piece, tool holding devices, application of coolant.

[DAY: 2]

MODULE II Metrology & Inspection **(5 Hrs)**

Marking tools: Introduction to marking tools, Divider, Scriber, Surface Gauge, V-Block, Parallel Block, Surface Plate, Angle Plate & Punches Measuring Tools: Introduction to measuring instruments, construction, application of steel rule, try square, vernier calliper, vernier height gauge, micrometre, bore gauge, radius gauge, bevel protractor, callipers & gauges. Conventional Lathe Machine: Lathe: Specification - Types - Mechanisms - Operations - Calculations - Capstan and turret lathe – Tooling with examples - Copy turning lathe

[DAY: 3]

MODULE III Basics Of N.C Machine Tools **(5Hrs)**

Conventional Numerical Control: Basic components of NC system, the NC procedure, NC coordinate systems, NC motion control system, applications of numerical control, advantages and disadvantages of NC, computer controls in NC, problems with conventional NC, NC controller technology, computer numerical control, functions of CNC, advantages of CNC. Tooling: Cutting Tool materials and its applications, carbide index able inserts, tooling systems for CNC Lathe, selection of tools for various work piece materials, selection of cutting parameters.

DAY: 4]

MODULE IV Programming & Operations On CNC Lathe **(5Hrs)**

Operating Principles of CNC Lathe Machine, speed and feed selections, Details on G codes, Details on M codes, Part programming, tool offset, nose radius compensation, work locating methods and devices, Applications of CNC Lathe.

[DAY: 5]

MODULE V Practical- Familiarization with lathes **(5 Hrs)**

Principal parts, work holding device, cutting tools & tool holding device. Plain turning, taper turning, eccentric turning, chamfering, facing, internal thread cutting, tapping, undercutting, parting–off, drilling and reaming, boring and counter boring, thread cutting and knurling combination of above operations.

[DAY: 6]

MODULE VI V Practical- Operations On CNC Lathe **(5 Hrs)**

Operating Principles of CNC Lathe Machine, speed and feed selections, Part programming, CNC machining centers, Tooling for CNC machines, Advanced CNC applications, tool radius Compensation. Practical on Various Jobs on CNC Lathe Machines. Study of machine speciation & features. Study of machine axis system & concept of coordinate system. Generation of coordinates using Cartesian & polar coordinate system. Study of origin concept & types of origin. Description of various parts of CNC lathe machine & control panel. Description of various G codes & M codes used for programming. Machine start-up & operation in different Modes, Exposure on work & tool setting. Introduction to creation of part programs. Creation of part programs for simple profiles using linear & circular interpolation. Programming using tool nose radius compensation. Programming using canned cycles. (Turning, facing, drilling, boring, tapping etc.).Programming of thread cutting, taper thread cutting, grooving & face grooving cycle. Setting the work piece origin point & tool offset measurement. Practical machining of work pieces Difference between machining centre and turning centreaxis designation of CNC lathe- types & classification of CNC lathe. Exposure on MASTERCAM. CAM software MASTERCAM/Unigraphics/Pro-E/ Cimatron etc.

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Department of Mechanical Engineering

One Week Value added Program on "*Skill Development on CNC Lathe Machine*"
18th Feb to 24th Feb 2022

Date	Morning Session (9 AM – 12 PM)	Afternoon Session (1:30 PM – 3:30 PM)
18 – 02 – 2022	Program Inauguration **Mr.S.Thirumavalavan** , Assistant professor, BIHER ***Introduction:*** *Industrial Safety Practices: Introduction – Safe guarding methods – Safety in Workshop - Common methods of protection in workshop* ***Shop Theory:*** *Work holding devices, setting & dialling of work piece, tool holding devices, application of coolant*	**Mr.V.Srinivasan** , Assistant professor, BIHER ***Engineering Drawing:*** *Engineering drawing – Limits, fits and Tolerance (Dimensional and Geometrical tolerance), Surface finish representation. Symbolic representation of Wheels, Gears etc Basics on Orthographic views from isometric views of machine parts / components. Dimensionings, Sectioning.*
20 – 02 –2022	**Metrology & Inspection: Mr.V.Srinivasan** ***Marking tools:*** *Introduction to marking tools, Divider, Scriber, Surface Gauge, V-Block, Parallel Block, Surface Plate, Angle Plate & Punches Measuring Tools: Introduction to measuring instruments.*	**Metrology & Inspection: Mr.S.Thirumavalavan** *Conventional Lathe Machine: Lathe: Specification - Types - Mechanisms - Operations - Calculations - Capstan and turret lathe – Tooling with examples - Copy turning lathe*
21 – 02 – 2022	**Basics Of N.C Machine Tools: Mr.S.Thirumavalavan** ***Conventional Numerical Control:*** *Basic components of NC system, the NC procedure, NC coordinate systems, NC motion control system, applications of numerical control, advantages and disadvantages of NC, computer controls in NC, problems with conventional NC.*	**Basics Of N.C Machine Tools: Mr.V.Srinivasan** ***Tooling:*** *Cutting Tool materials and its applications, carbide index able inserts, tooling systems for CNC Lathe, selection of tools for various work piece materials, selection of cutting parameters.*
22 – 02 – 2022	**Programming & Operations On CNC Lathe Mr.V.Srinivasan** *Operating Principles of CNC Lathe Machine, speed and feed selections, Details on G codes, Details on M codes*	**Programming & Operations On CNC Lathe Mr.S.Thirumavalavan** *Part programming, tool offset, nose radius compensation, work locating methods and devices, Applications of CNC Lathe.*
23 – 02– 2022	**Practical- Familiarization with lathes Mr.S.Thirumavalavan** *Principal parts, work holding device, cutting tools & tool holding device. Plain turning, taper turning, eccentric turning, chamfering, facing*	**Practical- Familiarization with lathes Mr.V.Srinivasan** *internal thread cutting, tapping, undercutting, parting–off, drilling and reaming, boring and counter boring, thread cutting and knurling combination of above operations.*
24 – 02 – 2022	***Practical Session:*** **Mr.V.Srinivasan** *Practical machining of work pieces Difference between machining centre and turning centreaxis designation of CNC lathe- types & classification of CNC lathe. Exposure on MASTERCAM. CAM software MASTERCAM/Unigraphics/Pro-E/ Cimatron etc.*	***Quiz/ Feedback / valedictory Session***

Program Coordinator:

Mr.R.Sabarish

Mr.S.Manavalan

Assistant Professor,

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manavalan.mech@bharathuniv.ac.in

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18-02-2022

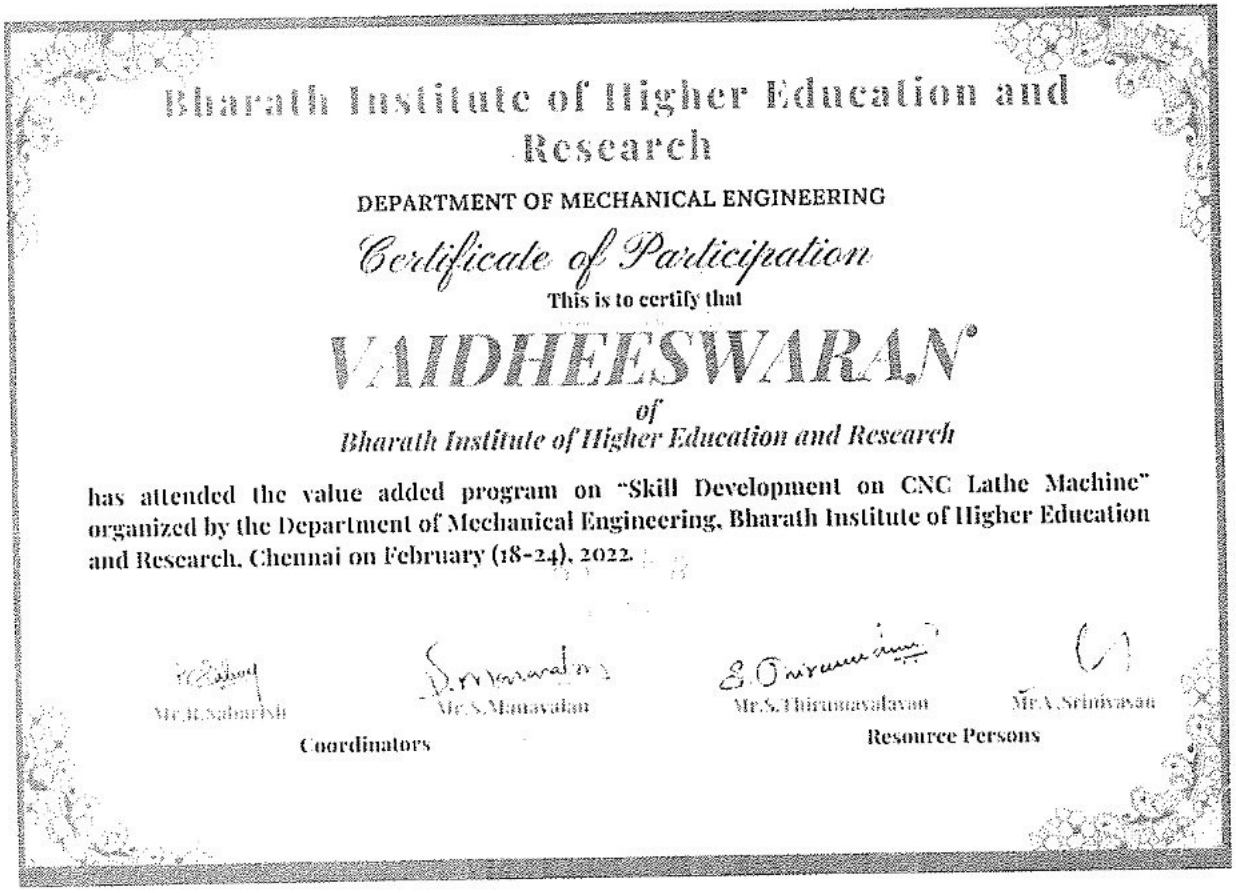
Skill Development on CNC Lathe Machine

Attendance sheet

S.No	Reg.No	Name	Department
1.	U15AM026	SATHISHKUMAR	Automobile Engineering
2.	U15AM027	SRIHARI	Automobile Engineering
3.	U15AM028	TARIGOPPALA NITHIN KUMAR	Automobile Engineering
4.	U15AM029	VIGNESH	Automobile Engineering
5.	U15AM030	VISHANTH	Automobile Engineering
6.	U15AM031	SURYA NARAYANAN	Automobile Engineering
7.	U15AM032	SATHIYANARAYANAN	Automobile Engineering
8.	U15AM033	PRAKASH	Automobile Engineering
9.	U15AM034	DERIN	Automobile Engineering
10.	U15AM501	MOHIT	Automobile Engineering
11.	U16ME138	VAIDHEESWARAN	Mechanical Engineering
12.	U16ME139	MD ZEESHAN RAZA	Mechanical Engineering
13.	U16ME144	JAGADALA KUMARA	Mechanical Engineering
14.	U16ME501	BENDICT JOHN SMITH	Mechanical Engineering
15.	U16ME507	BHARGAV	Mechanical Engineering
16.	U15ME126	MANOVA PENIEL	Mechanical Engineering

17.	U15ME127	MARSHAL RAJ	Mechanical Engineering
18.	U15ME509	MUTHUKAMACHI	Mechanical Engineering
19.	U15ME512	VIGNESH	Mechanical Engineering
20.	U15ME513	SAI	Mechanical Engineering
21.	U16MT501	MUGILAN	Mechatronics
22.	U16MT502	VIGNESHWAR	Mechatronics
23.	U16MT503	KARUPHIN KAWIN J	Mechatronics
24.	U16MT701	CHANDRASEKAR	Mechatronics
25.	U16MT702	CHIRANJEEVI	Mechatronics
26.	U15MT001	AJITH	Mechatronics
27.	U15MT002	BALAJI	Mechatronics
28.	U15MT003	INAYAT ULLA RABBANI	Mechatronics
29.	U15MT004	INAYATHULLA	Mechatronics
30.	U15MT005	KARTHIGAYAN	Mechatronics

Certificate



Bharath Institute of Higher Education and Research

DEPARTMENT OF MECHANICAL ENGINEERING

Certificate of Participation

This is to certify that

VAIDHEESWARAN

of

Bharath Institute of Higher Education and Research

has attended the value added program on "Skill Development on CNC Lathe Machine" organized by the Department of Mechanical Engineering, Bharath Institute of Higher Education and Research, Chennai on February (18-24), 2022.

Mr.R.Saharish — Mr.S.Manavalan — Coordinators

Mr.S.Thirumavalavan — Mr.A.Srinivasan — Resource Persons

Feedback Form

Course Name: SKILL DEVELOPMENT ON CNC LATHE MACHINE

COURSE FEEDBACK FORM

Name : Vignesh Date: 18/02/2022

Reg.No: U1SAM029

1. About the Course Information on the Respondent: (Tick (√) Appropriately)					
Depth of Coverage					
UG level	Graduate level	✓	Advance level		
Standard of test and assignments					
High	Normal	✓	Easy		

	A	B	C	D	E
Coverage of the syllabus	✓				
Organization of the Course		✓			
Emphasis on fundamentals					
Emphasis on fundamentals	✓				
Coverage of modern advanced topics		✓			
Availability of text books study materials		✓			
Usefulness of tests and assignments	✓				
Overall rating of the Course	✓				
What benefit you derived from the course?		✓			

Course Name: SKILL DEVELOPMENT ON CNC LATHE MACHINE

About the Instructor: Information on the Respondent: (Tick (√) Appropriately)

		A	B	C	D	E
1.	Pace of the Teaching/lecture	✓				
2.	Comment of the Subject	✓				
3.	Clarity of expression	✓				
4.	Level of preparation		✓			
5.	Level of interaction		✓			
6.	Accessibility outside the class	✓				
7.	Others (please specify Teaching is Good.	✓				

A: Excellent		B: Very Good		C: Good		D: Satisfactory		E: Poor	

Skill Development on CNC Lathe Machine – Image