

Short Term Courses

COURSES FOR DIPLOMA/DEGREE IN MECHANICAL ENGG. OR EQUIVALENT		
COURSE NAME	DURATION	COURSE FEE
Auto CAD (Mechanical)	1 Month	₹7,000/-
CATIA	1 Month	₹8,000/-
Creo	1 Month	₹8,000/-
UNIGRAPHICS	1 Month	₹8,000/-
SOLIDWORKS	1 Month	₹8,000/-
MASTER CAM	1 Month	₹8,000/-
CNC Milling & Turning	1 Month	₹8,000/-
ANSYS	2 Weeks	₹8,000/-
3D Printing & Additive Manufacturing	2 Weeks	₹8,000/-
COURSES FOR DIPLOMA/DEGREE IN ELECTRICAL/ ELECTRONICS ENGG. OR EQUIVALENT		
COURSE NAME	DURATION	COURSE FEE
PLC	1 Month	₹8,000/-
VLSI	1 Month	₹8,000/-
SCADA	1 Month	₹8,000/-
Advanced Embedded System	1 Month	₹8,000/-
ROBOTICS	1 Month	₹8,000/-
Lab View	1 Month	₹8,000/-
E.CAD	1 Month	₹7,000/-
COURSES FOR DIPLOMA/DEGREE IN CIVIL ENGG.		
COURSE NAME	DURATION	COURSE FEE
Auto CAD (Civil)	1 Month	₹7,000/-
STAAD PRO	1 Month	₹8,000/-
3Ds Max	1 Month	₹8,000/-
REVIT	1 Month	₹8,000/-
COURSES FOR ANY GRADUATE		
COURSE NAME	DURATION	COURSE FEE
MAT LAB	2 Weeks	₹8,000/-
Hardware Networking	1 Month	₹5,500/-
.NET	1 Month	₹5,500/-
Core JAVA	1 Month	₹5,500/-
Advanced JAVA	1 Month	₹5,500/-
C	1 Month	₹3,500/-
C++	1 Month	₹3,500/-
Entrepreneurship Skill Development Program	2 Weeks	₹2,500/-
Internet of Things	2 Weeks	₹8,000/-

ALL THE ABOVE SHORT TERM COURSE START ON 1ST WORKING DAY OF EVERY MONTH

MASTER CERTIFICATE COURSE IN CAD/CAM (MCC)



AS 9100,
ISO 9001, 14001, 29990, 50001 &
OHSAS 18001 CERTIFIED

MSME TOOL ROOM, BHUBANESWAR

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ISO 9001, 14001, 29990, 50001 &
OHSAS 18001 CERTIFIED

CENTRAL TOOL ROOM & TRAINING CENTRE
Bhubaneswar, Odisha

NSQF Complied Long Term Courses

COURSE NAME		DURATION	COURSE FEE
COURSES FOR 10TH PASS OUT			
Diploma in Tool & Die Making	DTDM	4 Year	₹19,000/- (per Semester)
Diploma in Mechantronics	DIM	3 Year	₹19,000/- (per Semester)
ITI Machinist	ITIM	2 Year	₹28,000/- (per Year)
ITI Fitter	ITIF	2 Year	₹28,000/- (per Year)
ITI Electrician	ITIE	2 Year	₹28,000/- (per Year)
Condensed Course in Tool & Die Making	CTDM	1 Year	₹66,000/-
Certificate Course in CNC Turning & Milling	CCTM	1 Year	₹32,000/-
COURSES FOR UNDER MATRIC			
Certificate Course in Machine Operation	CCMO	1 Year	₹18,000/-
COURSES FOR ITI STUDENTS			
Certificate Course in Advance Machining	CCAM	1 Year	₹32,000/-
Advance Certificate Course in Machine Maintenance	ACMM	1 Year	₹32,000/-
Advance Certificate Course in CNC Machining	ACCCM	1 Year	₹34,000/-
Advance Certificate Course in Welding Technology	ACCWT	1 Year	₹50,000/-
Certificate Course in Machining	CCM	6 Months	₹22,000/-
Certificate Course in Fitting & Rigging	CCFR	6 Months	₹32,000/-
Suryamitra	-----	1.5 Months	₹10,000/-
COURSES FOR DIPLOMA IN MECHANICAL ENGG. OR EQUIVALENT			
Post Diploma in Tool & Die Manufacturing	PDTDM	1 Year	₹54,000/-
Post Diploma in CAD/CAM	PDCC	1 Year	₹54,000/-
Advance Diploma in CNC Programming Techniques & Practice	ADCNC	6 Months	₹34,000/-
COURSES FOR DEGREE IN MECHANICAL ENGG. OR EQUIVALENT			
Post Graduate Diploma in Tool Design & CAD/ CAM	PGTD	1 Year	₹60,000/-
Post Graduate in Aerospace Manufacturing	PGAM	1 Year	₹60,000/-
Master Certificate course in CAD / CAM	MCC	6 Months	₹36,000/-
COURSES FOR DIPLOMA IN ELECTRICAL/ELECTRONICS ENGG. OR EQUIVALENT			
Advanced Diploma in Machine Maintenance & Automation	ADMMA	6 Months	₹34,000/-
Advanced Embedded Technology	AET	6 Months	₹34,000/-
Certificate Course in Electrical Equipment Repair & Maintenance	CCERM	6 Months	₹34,000/-
Post Diploma in Industrial Automation & Robotics	PDIAR	1 Year	₹60,000/-
COURSES FOR DEGREE IN ELECTRICAL/ELECTRONICS ENGG. OR EQUIVALENT			
Master Certificate Course in Automation & Process Control	MCCAPC	6 Months	₹36,000/-
COURSES FOR DIPLOMA IN MECHANICAL/ ELECTRICAL/ELECTRONICS ENGG. OR EQUIVALENT			
Post Diploma In Mechatronics	PDIM	1 Year	₹54,000/-
COURSES FOR DIPLOMA/DEGREE IN CIVIL ENGG.			
Post Diploma in Structural Design & Analysis	PDSDA	1 Year	₹54,000/-
Advance Diploma in Structural Design & Analysis	ADSDA	6 Months	₹34,000/-
COURSES FOR ANY GRADUATE			
Advance Certificate Course in Inspection & Quality Control	ACCIQ	6 Months	₹22,000/-
Advance Diploma in Computer Hardware & Networking Management	ADCHNM	6 Months	₹34,000/-
Advanced Certificate Course in Software Application	ACCSA	6 Months	₹22,000/-

MASTER CERTIFICATE COURSE IN CAD/CAM (MCC)

Introduction to CTTC:

MSME Tool Room Bhubaneswar (Central tool Room & Training Centre) established in the year 1991, Today stands as the premier Tool Room & Training Centre in India. Under the Technical Co- operative programme between Government of India and Govt. of Denmark the Centre was established as a Govt. of India Society. The management of affairs of the Centre rests with the Governing Council constituted by Govt. of India. Additional Secretary & Development Commissioner (MSME), Govt. of India, is the President of the Society & Chairman of the Governing Council.

MSME Tool Room – Bhubaneswar is on the way of achieving its set goal with its extension Centre at Rayagada and Kalinga nagar, Odisha. It believes its bench marking its standards not only against the tool room and training centers in India and the world. The zeal and experience and commitment of employees has been pushing the Centre to achieve the greater height of quality industry oriented training programs for different levels and different discipline students and production of highly precision components for tool and die making, automobile and aerospace components.

Objectives of this course

Upon completion of this course, Participants will be able to:

- Work perfectly in all design, analysis & manufacturing areas in their industries.
- Create rich & complex product design, assemblies & drawing of these parts.
- Confident enough to program and operate the CNC machines solve day-to-day problems and the team of machinists & programmers & designers.
- Know linear, nonlinear, explicitly dynamic structural & steady state, transient thermal analysis.
- Know how to lead a team & handle manpower in industries.

Who can avail this opportunity:

Degree in Mechanical/Production/Automobile Engineering or equivalent is eligible for taking admission. The company sponsored candidates will be preferred. Unemployed /Fresh Degree holders and those students who have appeared Final year & awaiting result can also apply.

Duration: 6 months (8 hours per day & 6 days in a week)

Occupation of Qualification: CAD/ CAM Engineer

Progression of Occupation from Qualification: After completion of course and after 4 years of experience, the trainee can work as a **Sr. CAD/CAM Engineer** and after that 8 years of experience jobholder can work as **CAD/CAM Manager**

Fee:

₹ 36,000/-per participant to be paid in the following instalments.

(5% Discount on One-time Payment of Course Fee at the time of Admission)

At the time of registration	-	₹ 1,000/-
First Instalment	-	₹ 18,000/- (At the time of admission)
Second Instalment	-	₹ 17,000/- (After completion of two month)
NSQF Examination Fee-		₹ 800/- (At the time of admission)

22.5%seats are reserved for SC/ST candidates for whom no course fee will be charged subject to production of two photocopies of caste certificate dully attested by self. However, all other fees/deposits is to be paid in case of admission. Caste Certificate in Original from competent authority is to be produced for verification at the time of admission, which may be re-verified from the issuing authority.

DETAILED COURSE PLAN FOR 6-MONTHS :

Course Content		
Software	Technical Subjects	Soft Skill
Computer Aided Design (AutoCAD)	Engg. Drawing	Communication Skill
Computer Aided Design (Solidworks)	Engg. Metrology	Personality development
Computer Aided Design (NX CAD)	Engg. Material	Group Discussion
Computer Aided manufacturing (NX CAM)	Production Technology	Resume preparation
Computer Aided Engineering (ANSYS)	Strength of Material	Interview Technique
Advance Computer Aided Design (CREO Parametric and CATIA)	Engg. Mechanics	Mock Interview
CNC Programming And CNC Machine Practice		ISO
Entrepreneurship Development		5S
Live Project Work		KAIZEN

EVALUATION PATTERN:

SL. NO.	SUBJECT	THEORY	PRACTICAL	VIVA	TOTAL
1	PRODUCTION TECHNOLOGY	60	0	40	100
2	CAD (AutoCAD, SOLIDWORKS, NX CAD)	30	50	20	100
3	ADVANCE CAD (CREO, CATIA)	30	50	20	100
4	CAM (NX CAM)	30	50	20	100
5	CAE (ANSYS)	30	50	20	100
6	PROJECT WORK	30 (Presentation)	50	20	100

ELIGIBILITY TO APPEAR IN THE EXAM:

Minimum 70% attendance is compulsory for the students to appear for the assessments

PASSING MARKS:

Passing criteria is based on marks obtain as follows: Minimum Marks to pass Theory Exam – 60%, Minimum Marks to pass Practical Exam – 60%, Minimum Marks to pass Viva Exam – 50%, Minimum Marks to pass Project Report and Presentation Exam – 60%

COURSE CONTENT:

COMPUTER AIDED DESIGN (AutoCAD, Solidworks AND NX CAD) Total Hrs. – 256 Hrs.

Software	Contents (chapters/topics)
AutoCAD	<ul style="list-style-type: none"> INTRODUCTION: Auto CAD ,co-ordinate system DRAFTING: introduction to drafting, curve creations, use of functional keys, utilization of layer, block, wblock, attribute Edit, text creation methods, use of template. SOLID MODELING: solid creation commands, UCS movements, 3D visualization, photo realistic, rendering and customization.
Solidworks	<ul style="list-style-type: none"> SKETCH: Introduction to sketch, positioning sketch, smart picking method, simple profile, predefine profile, constraints and Repair sketch SOLID MODELING: All boss feature, all cut feature, all feature (round, chamfer), feature modification using feature manager tree and reference geometry. ASSEMBLY: Introduction, bottom up & top down assembly, assembly constraint, move component, assembly pattern, motion study, mechanical mate, exploded view, assembly feature, checking interface & clearance between parts GENERATIVE DRAFTING: Defining drawing sheet, creating, import template SHEET METAL DESIGN: creation of different sharing & no shearing sheet metal component with blank development. Punch die extraction & complete press tool assembly. Core Cavity extraction.

NX CAD	<ul style="list-style-type: none"> PART MODELING: Introduction to sketch, sketch, sketch curves, constraining concept, dimensioning, curve concept, curve operations, form features, modifying features, feature operations and free for features, surface modelling options and direct modelling. ASSEMBLY: concept of assembly, types of assembly, mating condition exploded views, sequences, clearance analysis, array in assembly, modification, top down assembly etc. DRAFTING: purpose of drafting, types of drafting, view generation, dimensioning, symbols, assembly drafting, part list, nameplate generation, drawing templates.
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COMPUTER AIDED ENGINEERING (ANSYS) Total Hrs. – 80 Hrs.

Software	Contents (chapters/topics)
ANSYS	<p>STRUCTURAL :</p> <ul style="list-style-type: none"> Linear Nonlinear: material, geometric and contact Dynamics: modal, transient dynamic, random vibration, explicit dynamic <p>THERMAL:</p> <ul style="list-style-type: none"> Steady state & Transient COUPLED FIELD: (structural & thermal)

ADVANCE CAD (CREO PARAMETRIC & CATIA) Total Hrs. – 240 Hrs.

Software	Contents (chapters/topics)
Creo Parametric	<ul style="list-style-type: none"> Creo Modelling: Introduction to Creo Parametric, 2D Profile Creation, Working with Constraint, Creating 3d parametric solid modelling, mass properties, creating curves Rounds, variable section sweep, blend profiles, advanced draft. Advanced Solid Modeling – Warp, Wrap, Toroidal Bend, Spinal Bend, Cosmetic Sketch, Cosmetic Thread Creo photo renders creating photo render image of Creo/engineering parts Assembly Modeling, Creo Mechanism Creo-Detailing: creating drawings multiple model defining global setup files with drawing standards automatic dimension, tolerances. Advanced Creo sheet metal design: create wall blends, punch notches forms Relief bend allowance completing, specific sheet metal features accurate flat patterns & bend order table, Set design rules converting solid to sheet metal creating on attached geometry Core Cavity Extraction Creo-Web Publish: Creating all graphics & part, html web pages.
CATIA	<ul style="list-style-type: none"> SKETCHER: Introduction to sketch, positioning sketch, smart picking method, simple profiles, predefines profiles, Editing profile, constraints, animated constraint and sketch analysis. SOLID MODELING: Details of Sketch base feature, dress-up feature, transformation feature options. Modification of features by using edit menu options, trouble shooting in CATIA modelling, different selection procedure etc. Generative Surface Design: wireframe & surface creation, solidification, surface analyses. ASSEMBLY: Introduction, bottom up & top down assembly, assembly constraints, instance manipulation, exploded view, and assembly features. Checking clash sectioning assembly feature. DMU KINEMATICS: Creating different mechanism by Defining different joints i.e. Revolute, prismatic, cylindrical, gear, rack & pinion, curve, rigid, axis and universal joints. Checking clash between mating parts. Assembly constraints to kinematic joints. DRAFTING creation of design sheet by generating views (orthographic, sectional, detail, broken out & pictorial views etc.), adding dimensions, symbols, template etc. assembly drafting by adding bill off material, balloon generation. SHEET METAL DESIGN: creation of different sharing & no shearing sheet metal component with blank development. Punch die extraction & complete press tool assemble. NC MANUFACTURING: prismatic, surface & lathe machining with post processing & DNC. CORE AND CAVITY: Core Cavity extraction for injection & Split Mould, Punch Die for Press tool With Complete Idea of Standard Mould base & a compound press tool assembly.

COMPUTER AIDED MANUFACTURING (NX CAM): Total Hrs. – 48 Hrs.

Software	Contents (chapters/topics)
NX CAM	<ul style="list-style-type: none"> • Introduction to Unigraphics CAM environment. Brief concept of CAM. Machining environment, creating new operation. Manufacturing applications, Workpiece & MCS Setting. • 2D Tool path Generation • Various Milling & Turning Operations (Roughing, Semi Finishing, Finishing) • Simulation with Machine • Post Process Generation • Milling & Turning with IPW

CNC PROGRAMMING & CNC MACHINE PRACTICE: Total Hrs. – 96 Hrs.

Unit Name	Contents (chapters/topics)
Introduction to CNC	Introduction to CNC technology & machines. NC & CNC machines. various types of controllers. NC programming basics. Introduction to CNC machines & its accessories & attachments. Advantages & disadvantages.
CNC Programing	Introduction to CNC programming. G codes & M codes. Implementation of codes through programs. Use of codes in different controllers.
CNC Turning	Introduction to CNC turning. G codes & M codes of different controllers. Implementation of codes for various turning operations. Introduction to turning Inserts & their use.
CNC Milling	Introduction to CNC milling. Different parts of the machine with their use. G codes & M codes for different controllers. Various operations for different contours in CNC milling using the codes. Different types of cutting tools.

Technical Subjects

Unit No.	Unit Name	Contents (chapters/topics)
UNIT-I	Production Technology	Workshop safety rules, Use of personal protective equipment (PPE), Cutting tool materials, Parts of lathe machine and their function, Lathe and Lathe operations, Milling and Milling Operations, Grinding and Grinding operations, De-burring process, Cutting Tools
UNIT-II	Engg. Drawing	Evaluation of engineering drawing, basic rules of engineering drawing, Angles of projection, Views (orthographic view, pictorial view, sectional view, detail view etc.), conversion of 2d view to 3d views, Surface roughness, limits, fits & tolerances, geometrical dimension & tolerance as per ASME Y14.5, study of production drawing & symbols.
UNIT-III	Engg. Metrology	Standardization of measuring instruments (Linear & Angular, Precision & non-Precision). Gauges (standard & Limit gauge, Comparators as well as hands on practise on CMM, Profile projector, Height Master Etc.
UNIT-IV	Engg. Material & Strength of Material	Study of Mechanical properties, Ferrous & Nonferrous materials, Steel structures, Defect in crystal & Heat treatment process, Study over Stress, strain, Hooke's law, Poisson's ratio, Shear force & Bending moment, Slope & Deflection of beam, Centroid & Centre of gravity, Moment of inertia, Theory of failure, Thin & thick vessel, column & strut, Torque, Moment, Couple.

SOFT SKILLS:

Preparing job-oriented resume communication skills (verbal and non-verbal), Public speaking, personality (types and attributed), Personality test, Interview techniques (FAQ, HR and Telephone) and Presentation Skills, Group Discussion and Introduction to ISO 9001 Problem Solving and Feedback.

How to apply:

Application form attached with the broacher be filled up & mailed to Sr. Manager (Training) along with a D/D of ₹1000.00 on or before _____ In the event of selection this money will be adjusted in the course fee otherwise refund will be given on or before one week of course starts. Admission notification will be issued immediately after the last date of receipt of application and selected candidates will be required to pay fees within 15 days on or before _____ and report for training from _____

Hostel Accommodation:

Dormitory accommodations can be arranged in the CTTC guest house which can be booked on advanced request. The accommodation charges will be ₹1200.00 per month per bed.

Uniform:

The candidates will have to get uniforms, dress stitched at their own cost as per the colour & design specified by the center.

Certification:

After successful completion of training main certificate with grade, mark sheet & project certificate will be issued separately to the trainees.

Placement Help:

CTTC placement cell will make efforts to contact & invite companies to conduct campus interviews; however, no guarantee can be given for placement/employment. Interested trainees can be registered by paying ₹2,000/- each towards placement registration at start of the programme and in case of trainee is not successful from getting placement he/she may be refunded ₹1,500/-.

GENERAL RULES & REGULATIONS FOR TRAINEES:

- CTTC reserves the right to reject any application without assigning any reason. Incomplete applications are liable to be rejected.
- Registration Fee is Non Refundable, in case any candidate cancels his admission for any reason.
- Course Fee once paid will not be refunded & Registration/ Course Fee is not transferrable.
- Insurance & other charges as specified for the course to be paid but the trainee in addition to the course fee as applicable.
- All the trainee will be ensure discipline within the campus.
- Trainee shall be required to wear uniform & shoes as prescribed by the institute and possess I-Card compulsory during training.
- Mobile Phones, Pen Drives, CD any other related items are not permitted inside CTTC premises.
- Regular attendance will have to be maintained by the trainee as per course schedule & 80% attendance is compulsory in all subjects individually.
- Trainees will abide by the examination rules and regulations displayed on Notice Board of CTTC and as amended.
- Leave without information/ permission will not be entertained.
- Trainees going on leave or home during vacation should inform course coordinator compulsorily.
- No trainee shall be organize/ conduct any meeting within the campus.
- The Machines/ Equipment/ Furniture must be handled carefully. No act of damage to CTTC property shall be carried out by the trainee, any loss or damage to property, including water & electricity usage.
- Smoking & chewing tobacco, possessing or drinking alcoholic beverages in any form is strictly prohibited within CTTC premises.
- Ragging is strictly prohibited in the premises.
- Writing any Comment/ Remarks/ Name on doors, walls, toilet, and notice board is strictly prohibited.
- Violation of above & any other Rules, Regulations, Disciplines and Conduct are liable for disciplinary action.