Dhirajlal Gandhi College of Technology

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7.2.1 - Best Practices

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CRITERION: 7.2.1 - Best Practices

Best Practices 1: Career Development Plan

The Objective:

The Objective of this practice is to help students **prepare for Placements** throughout the 4 years, through a well planned Career Development Plan. The main purpose is to spread the training over 8 semesters and train them gradually with simple modules, depending on the capabilities of the student. This helps every student to get internships and secure excellent placements.

The Practice:

The Career Development Plan comprises of eight Training Modules **offered during** the semesters integrated with the academic schedule. The Plan is **designed by** the Placement Cell in association with the Heads of Department, Industry Experienced Faculty members, Industry Experts and Alumni. The modules evolve every year based on the industry requirements. The Career Development **Modules** train students for communication skills, problem solving skills, computer programming skills and technical expertise through projects. On completion of these modules the students are equipped with relevant certifications, good resumes and capabilities to face interview and secure their dream jobs.

Each student is enrolled under this plan from the first semester and is briefed about the all the eight modules. The students are assessed before and after every training module. This helps the students to move on to next modules or rejoin the same module for better performance. Each department has a structured team of placement mentors and trainers.

The first semester module is an activity based training that focuses **on Personality Development,** SWOT analysis and time management skills.

The Second Semester Module focuses on **problem solving skills and English communication skills.**

The third Semester Module helps students in developing strong **Engineering Fundamental Concepts.**

The fourth Semester Module is an **Advanced Level** of problem solving and communication skills.

The fifth module focuses on **Hands-on-Skills** on various technologies related to the branch of study. This is done through one day workshops and seminars from industry experts and alumni.

The sixth module helps the students to choose three areas of expertise and secure standardized certifications suggested by industry.

The Seventh module prepares the students for interview skills, group discussions, technical writing and presentation skills through a series of mock interviews during the module.

The Eight Modules helps the student to undertake industry defined/sponsored projects which gives them experience to work under guidance of professionals and also secure jobs. Company Specific Training is the unique feature of this concluding module.

Evidence of Success:

The success of the Career Development Plan is clearly evident from the record placements done by the Placement Department. Every year more than 90 % eligible students are placed with best companies with good packages. Since the training is designed based on relevant skill set, the students get excellent placement in their core areas. For example, the Mechanical Department students get good training in CNC machine based product development and get easily

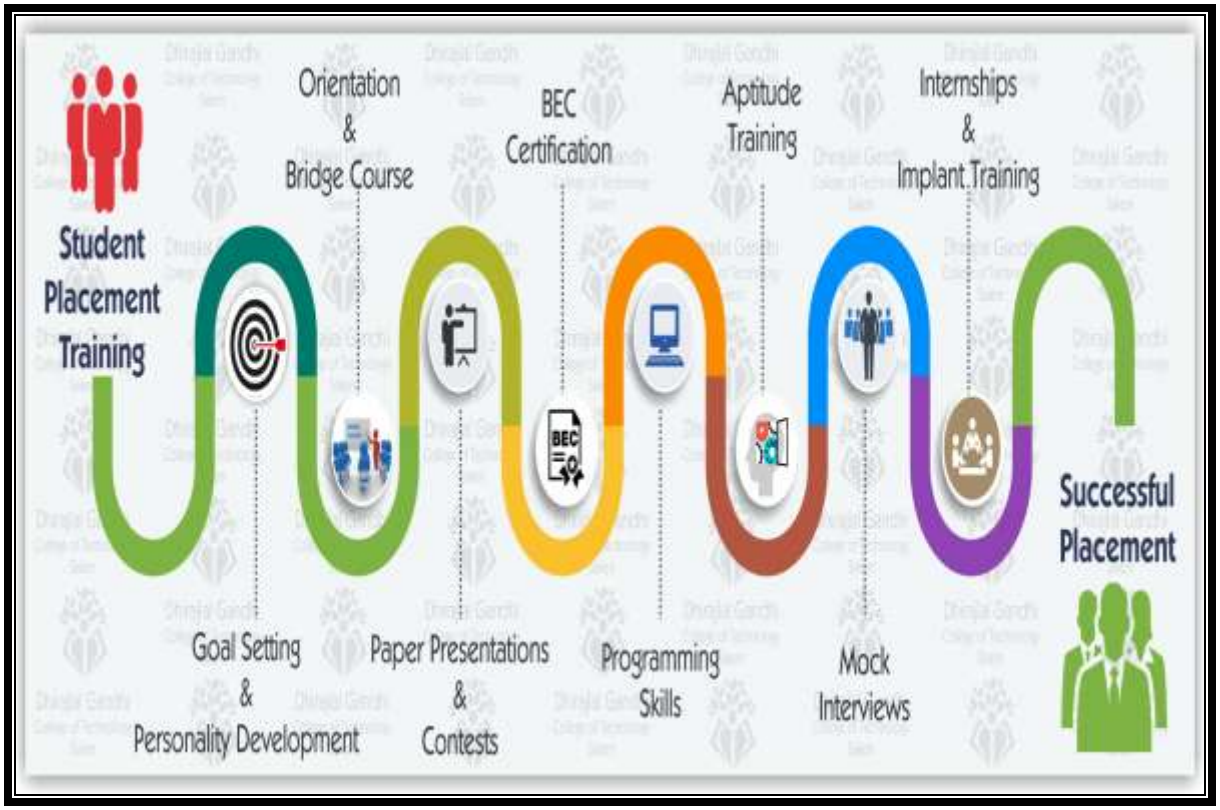
placed. Many companies have signed MOUs and have established training centre on college campus to train students in technologies required.

Problems encountered and Resources Required:

The problems encountered in implementing the Career Development Plan are the time constraints in training them while balancing the other academic activities, developing content for different modules based on changing Industry requirements.

For achieving high-quality success of this plan the college requires resources like laboratory for advanced and emerging technologies. As technology changes rapidly, the Plan has to modulate and create facilities and resource person to train students in the most recent technologies.

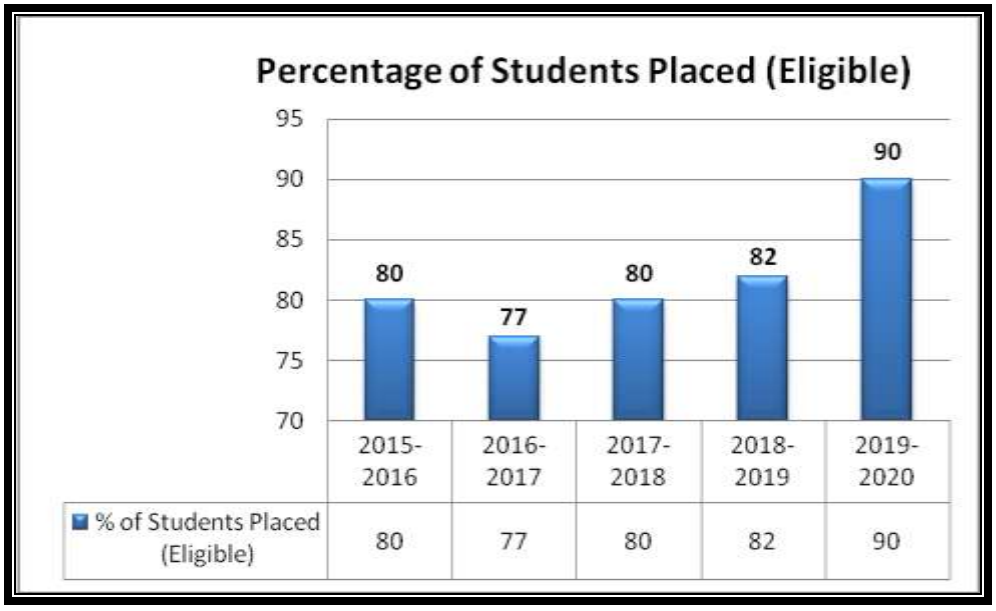
Career Development Plan:



Career Development Modules

Consolidated Placement Details

Academic Year	2019 - 2020	2018-2019	2017 - 2018	2016-2017	2015-2016
Total Strength	529	574	625	524	483
Eligible	489	486	490	393	357
Placed	440	402	396	305	287
% of Placed (Total Strength)	83	70	63	58	59
% of Placed (Eligible)	90	82	80	77	80



Percentage of Students placed during last 5 academic years

GLIMPSE OF PLACEMENT

7.2. Best Practices 2019-20

Best Practices 2: Promotion of Indigenous Product Development and Manufacturing Systems

DGCT has established special laboratories centers for the development of student with industry specific capabilities.

One such centre is the CNC Product Development Centre established by the department of Mechanical Engineering.

The Objective:

The Product Development and Manufacturing Centre comprises of Design and Simulation tools, CMM, and CNC machines Vertical Milling Centre and CNC Turning Centre which together form a complete product development system. The objective of practice is to train students to develop and produce any product using the state of art facility. Through this initiative they learn the entire process of reverse engineering, design, development, production and Quality Assurance methods as per the Industrial Standards. This results in equipping the student with real time knowledge and experience of manufacturing process.

The Practice:

Since its inception this centre has been receiving job orders and consultancy assignments and has been recognized by the industry for zero rejection rates. This process has been extended to training and preparing the students for the manufacturing sector.

The student enrolled for the training learns the fundamentals of reverse engineering as they scan the given product for its dimensions using the CMM and further model it using the tools such as depth, height and thickness. Further they are trained to redesign the product for any modifications and develop the model before the actual production. Subsequently they get complete training of Simulation Tools to develop the product and are trained in programming of the CNC machines. They are given complete hands on experience of working on the CNC machines, operating procedures, safety protocols and manufacturing line process to produce the given product. They also understand and follow the

Testing procedure as per industry standards of Quality Assurance. Every semester approximately batch of 50 students get trained as a part of the training program organized by the centre.

Evidence of Success:

As a Product Development Centre this Lab facility has successfully manufactured more than 70 types of components, particularly all for aerospace industries. Experienced Faculty with right skill set and work force, use of high quality tools and practicing quality control measures have resulted in excellent quality of production. As a result the centre has orders throughout the year for past 5 years generating 30 lakhs of revenue for the department.

The Training division of this centre has trained more than 500 students of the mechanical department over the past 5 years. The significant outcome of this training has resulted in students being placed in reputed industry like **Ford, Daimler, Renolds Chains, Ashok Leyland and Precision Camshafts etc.** The industry has excellent feedback of the performance of these students.

Problems encountered and Resources Required:

The production division has very recently started receiving orders that constitute of many critical components requiring Advanced Metrological Instruments. These instruments and tools for CNC machines require large financial investments. Budget constrained are encountered and are managed through sponsorships and donations.

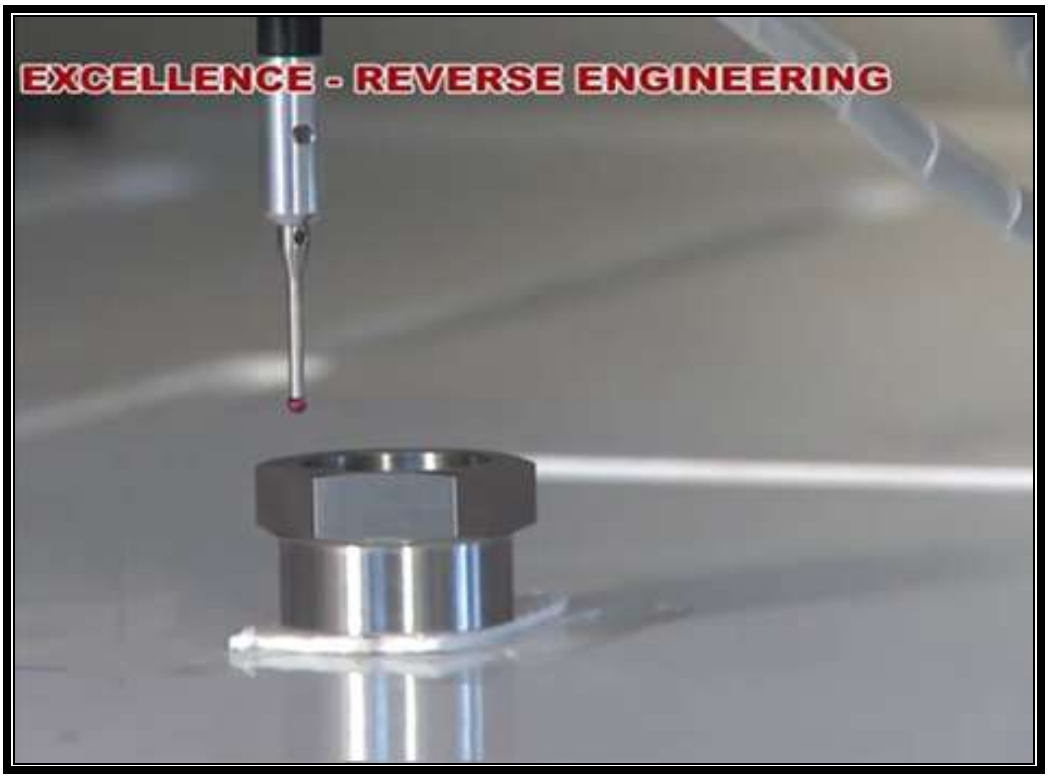
The training division has to create a special schedule for training beyond college hours without disturbing the academic schedule. The students have to follow the training module regularly without any absenteeism to learn and get the experience of the entire development and production cycle.

Lab Equipments Available

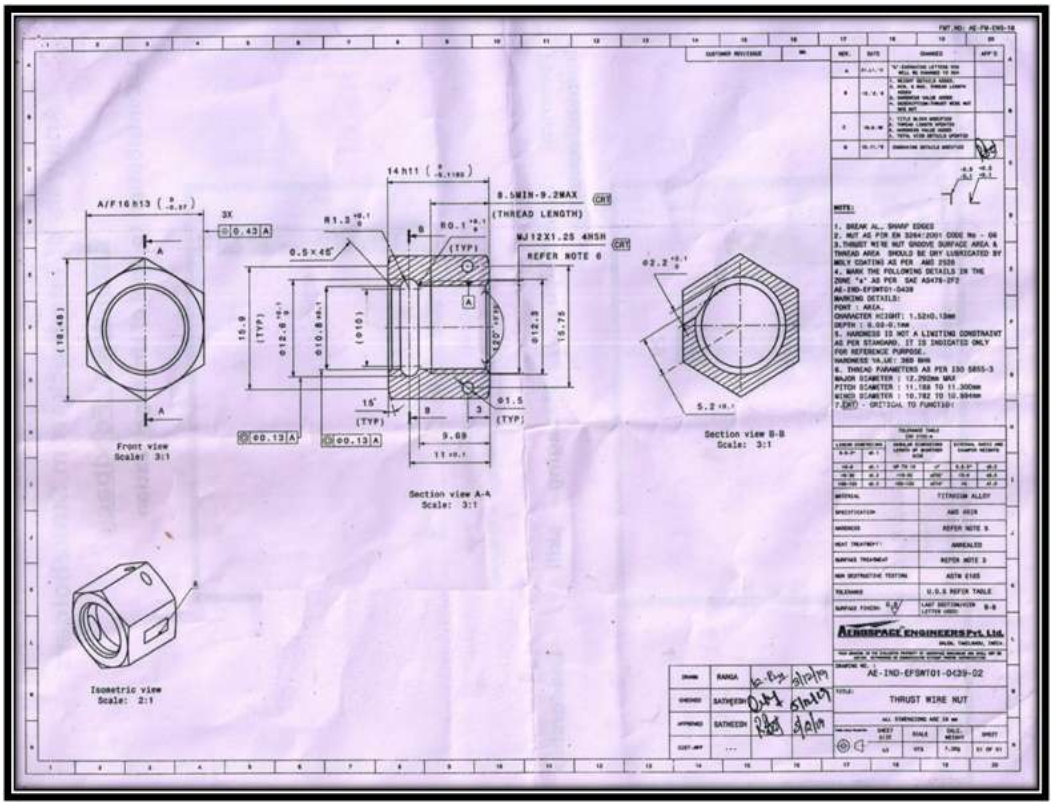
1. Computer Coordinate Measuring Machine (CMM)
2. Computer Desktop with 3D Modeling Software(SolidWorks16)
3. CNC Simulation Software(EdgeCAM)
4. CNC Turning Centre
5. CNC Vertical Milling Center

The Product to be developed

Measurement of the Product by using Computerized Coordinate Measuring Machine (CMM)

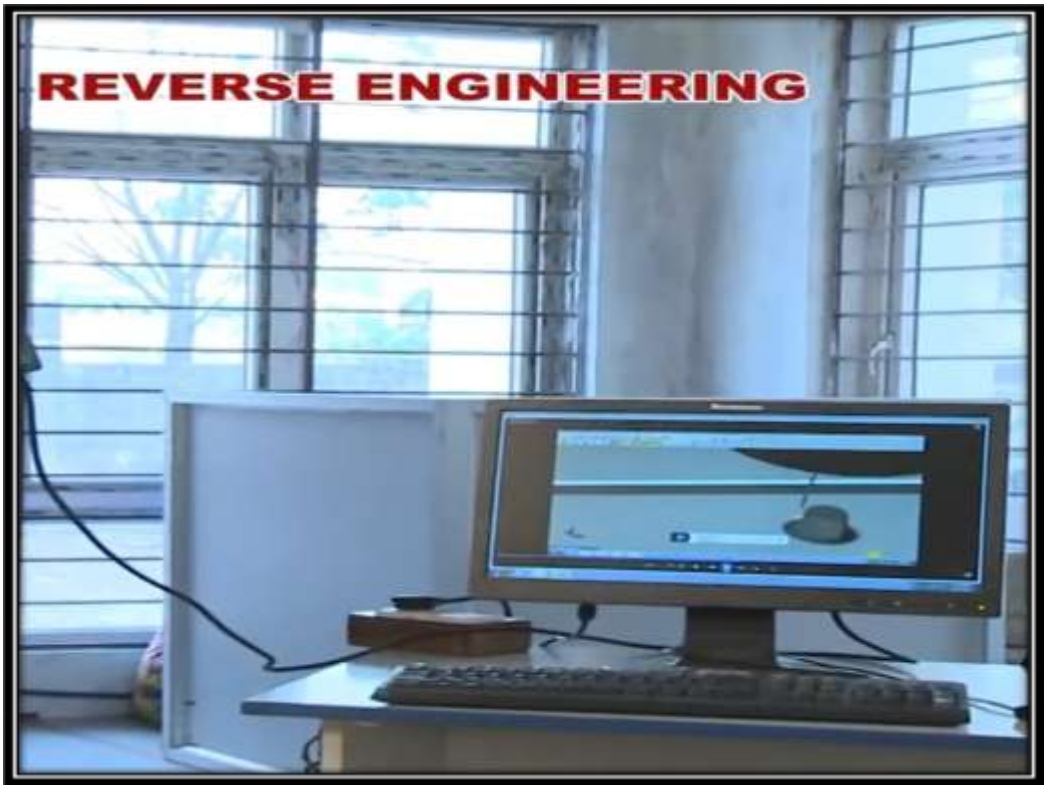


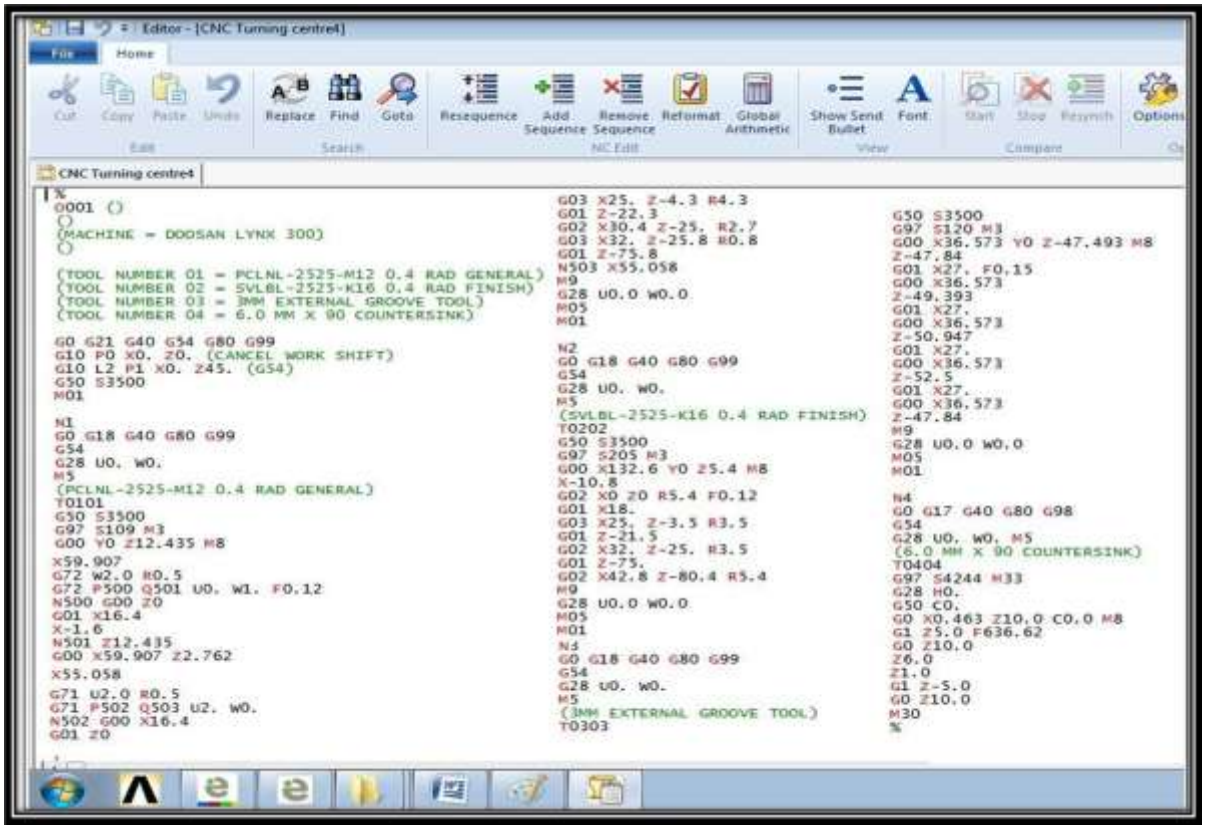
Manufacturing Drawing of Typical Component



Automatic generation of 3D Model of product measured by CMM

CNC simulation of the product (3D model) using "Edge CAM" software





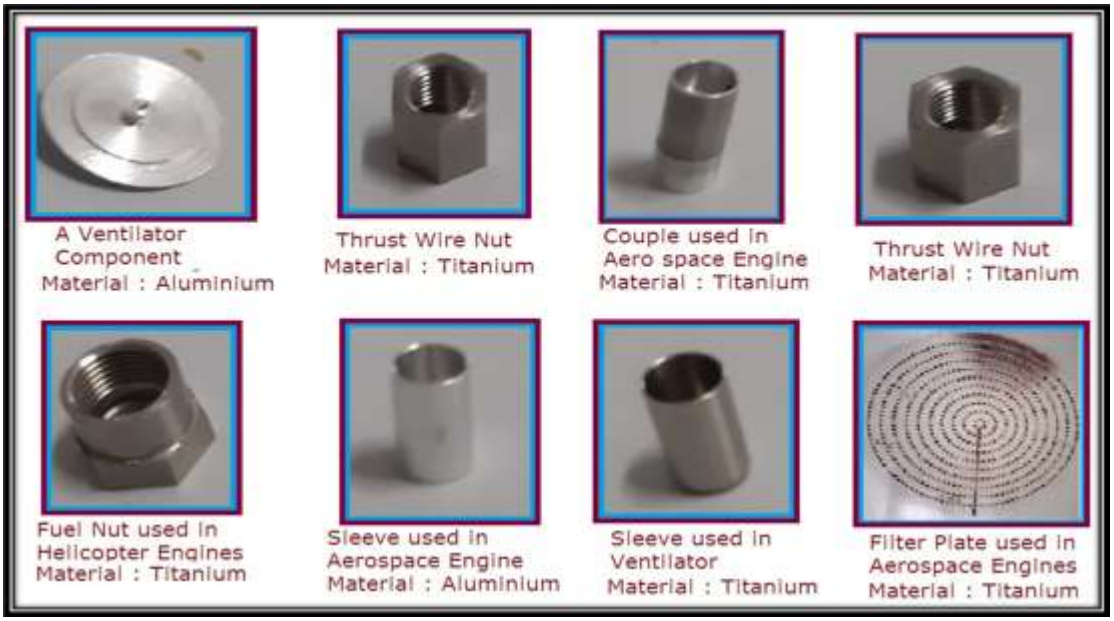
Manufacturing of the component in CNC Vertical Milling Center (VMC)

Finished components in CNC Vertical Milling Center (VMC)

Manufacturing of the component in CNC Turning Center

Finished components in CNC Turning Center

Products developed through Reverse Engineering Laboratory



Video of Reverse Engineering Laboratory, DGCT

https://www.youtube.com/watch?v=9XKOB-LYXuw