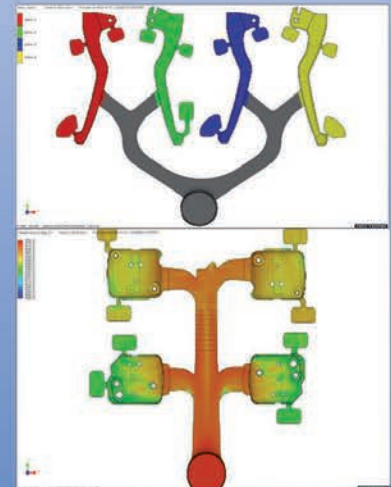
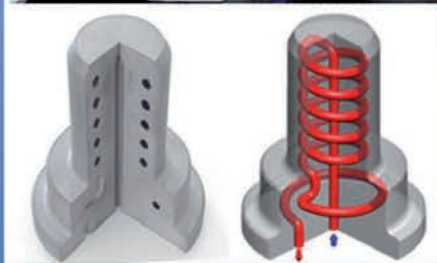
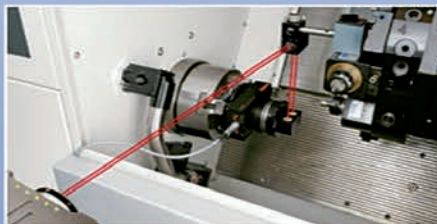
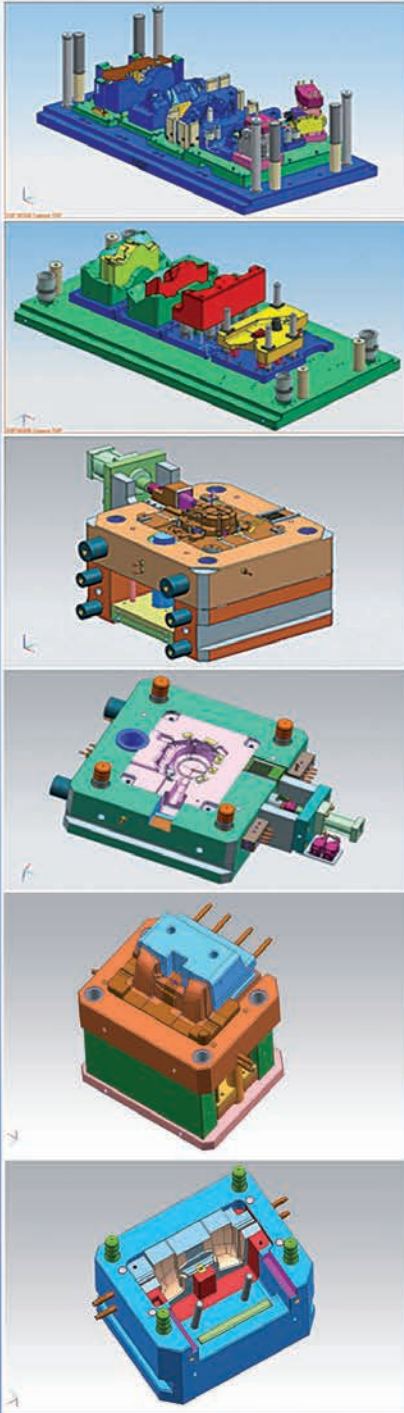




MSME TECHNOLOGY CENTRE INDO GERMAN TOOL ROOM, AURANGABAD

(A Govt. of India Society, Ministry of MSME)



- Robotics
- Production
- Consultancy
- CAD/CAM/CAE
- Reverse Engineering
- Low Cost Automation
- Quality Assurance & Calibration
- Training for Skilling / Career Devp.
- Welding
- Mechatronics
- Tool Manufacturing
- Precision Machining
- 3D Printing - Metal & Plastic
- Tool Designing & Simulation
- Product Design & Development
- 3D Scanning Reverse Engineering

Idea to Results-Project Conceptualization to Realization

PROFILE

The Government of India in its endeavour to provide the right stimulus for the growth of the industry in the country - particularly with the objective of helping the MSMEs has established Indo German Tool Room, Aurangabad.

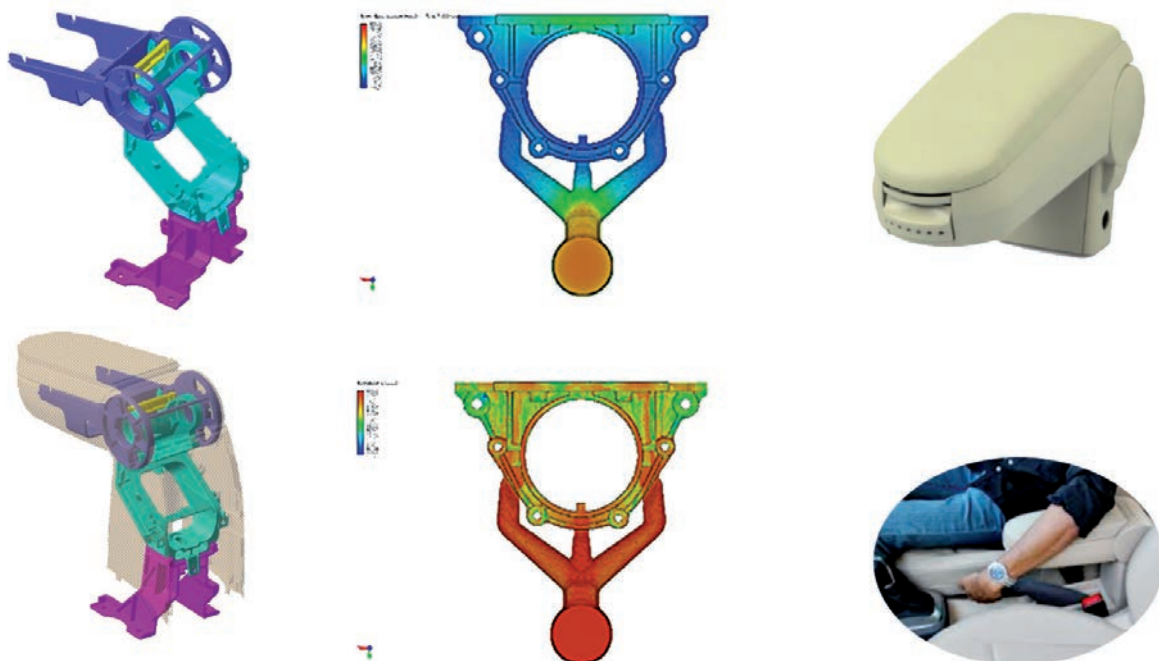
The modernization of INDO GERMAN TOOL ROOM (IGTR) under ministry of MSME's Technology Centre Systems Programme (TCSP) at Aurangabad going to strengthen its role in enhancing the competitiveness of MSME units in the region. The project is undertaken to upgrade and enhance its resources particularly in automotive sector but it will also enable the TC to extend its services to the industry more effectively.

Rapidly growing industries in the city of Aurangabad and surrounding industrial areas in Maharashtra provide the right environment for growth.

IGTR, Aurangabad is highly proficient in mould and die making technology and promote precision and quality in the development and manufacture of sophisticated moulds, dies and tools.

IGTR, Aurangabad is equipped with the best technology & abreast with the latest advancements in the field and periodically add new technology like CAD / CAM / CAE, CNC machining for Tooling, Low Cost Automation, Mechatronics, Robotics etc.

IGTR, Aurangabad is concentrating on an Integrated Development of the related segments of industries by way of providing International Quality Tools, Trained Personnel, Consultancy in tooling and related areas and is constantly crossing new frontiers in the quest for excellence and beyond.



THE SOLUTION PROVIDER



ACCREDITATIONS

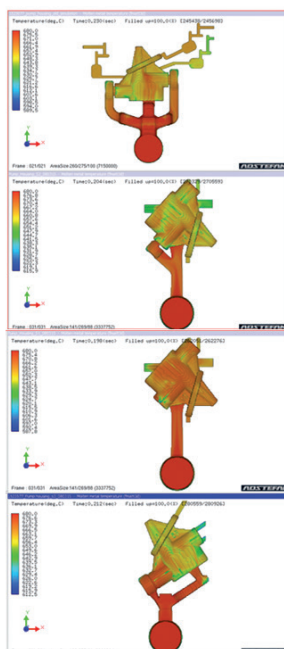
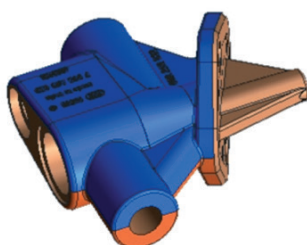
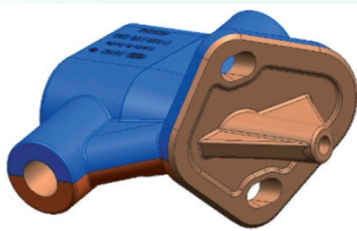
IGTR, Aurangabad strongly believes in Total Quality Management (TQM) and adhere to its principle. This belief is evident in the procedures adopted for checking components during and after manufacture. High precision equipment like CNC Coordinate Measuring Machine, Electronic Height Master, Profile Projector and Tool Makers' Microscope ensure thorough checking of the components.

IGTR, Aurangabad is an ISO 9001:2008, ISO 29990:2010, ISO 14001:2004, BS OHSAS 18001:2007, ISO 50001:2011, ISO/IEC 17025:2005 Certified Tool Room & Training Center. A full fledged standards room offers Calibration Services as per ISO/IEC 17025:2005 requirements.

TOOLING SOLUTIONS

IGTR, Aurangabad offers an array of cutting edge production services. These comprise of the manufacture of press tools, moulds, jigs, fixtures, gauges, die casting dies, manufacture of standard parts and components, and carry out. In addition, IGTR, Aurangabad provide technical services such as design of tools, dies, moulds and similar products, materials testing, heat treatment, quality control, and technical consultancy related to the manufacture or application of the production services of the tool rooms use CAD / CAM / CAE / CNC technology. They cover four key features: initial milling and grinding by conventional machines, CNC turning and milling, heat treatment and EDM wire.

For effective utilization of the high-tech facilities IGTR, Aurangabad relies on a team of experienced specialists: design and production engineers, plant supervisors, foremen, and technicians, e.g. tool and die makers, fitters and machine operators.



SERVICES OFFERED

IGTR, Aurangabad act as a centre of technology transfer to assist MSMEs in the fields of :

(i) Design & Manufacturing

Design and manufacture of precision dies and tools, moulds, jigs & fixtures, gauges etc. and their appropriate use and maintenance.

- Tool manufacturing using latest technology
- Tool related innovations for improved product design.
- Precision machining and Heat Treatment

(ii) Training

- Long Term, Medium Term & Short Term Courses in Tool Engineering, CAD / CAM / CAE, Automation, Mechatronics & Robotics.
 - Specialized Hi-Tech courses in Tool Engineering, Automation, Mechatronics, Robotics for Engineering Graduates, Diploma & ITI Certificate holders.
 - Skill enhancement courses for industry personnel
 - Upgradation courses for trainers in training institutions and industries.
- Customised training programmes for industry / industrial employees.

(iii) Consultancy & Others

Product & Process Development Simulations

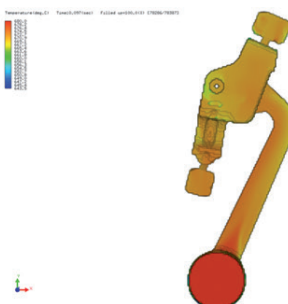
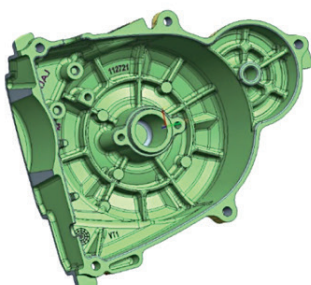
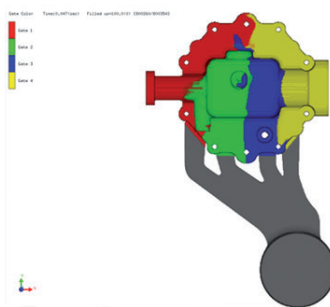
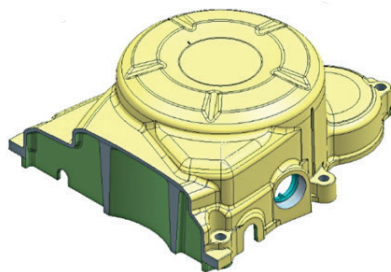
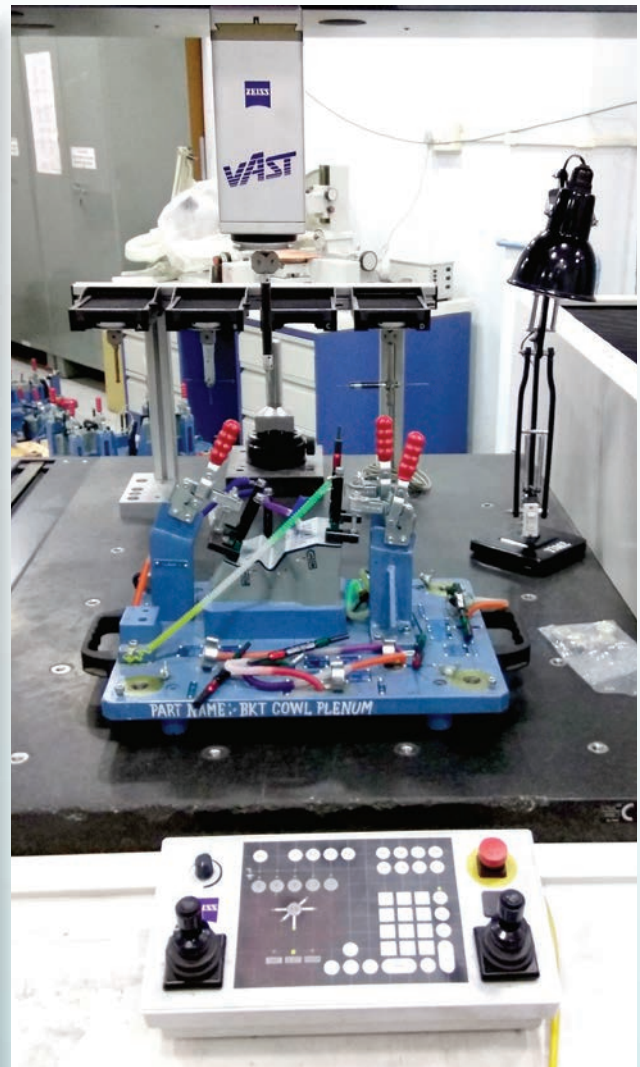
Productivity / Quality improvement

Training Programme / Course curriculum development for training institutes

Execution of Turn-key projects

New invention Technology Services

- | | |
|-------------|---------------------|
| 3D Printing | Product Development |
| 3D Scanning | Reverse Engineering |



3D PRINTING



Catering the needs of modern day technology requirement for product development, through innovation IGTR Aurangabad has set up latest technological facility for 3D Printing for metal & Plastic & Reverse Engineering through 3D Scanning this will help wide spectrum of engineering industries like Aerospace, Automotive, Medical, Special Purpose Machines, Tooling, Oil & Gas for Customised Product Development.

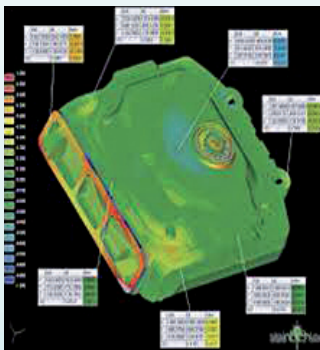
3D Manufacturing Metal Cast : M280 Building Volume 250 x 250 x 325mm

Applications

- Aero Engine Parts
- Automotive Parts
- Conformal Cooling Inserts
- Advance Cooling in Mold Die

Solutions

- Aluminium for Light Weight Engg. Applications
- Titanium Alloys for Aerospace / Medical Applications
- Maraging Steel/Nickel Alloys for High Performance Tool Engg. Applications



3D Printing Plastics : P396

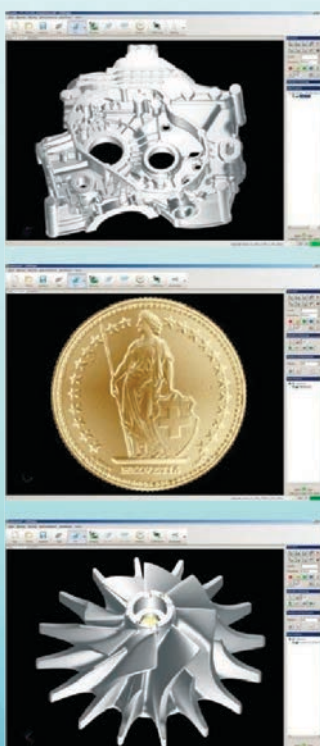
Total build size of 340 x 340 x 600 mm

Applications

- Automotive / Engineering Parts
- 3D Nesting / Stacking
- Weight reduction by AM
- Guide & Implants in Medicals

Solutions

- Aluminium Filled Polyamide for Soft Tooling
- Prime Cast for Investment casting applications
- Polyamide 11/12 for High Impact Strength / Gen. Engg. Applications
- Glass Filled/Carbon Filled/Polyamide for High Stiffness/Strength Applications



3D SCANNING & LASER CALIBRATION

3D SCANNING

Industrial requirements demands for analyse real world objects and environments data to be collected and converting in to a shape and appearance matching with original object for rapid development of Engineering products and supplying in the market to meet customers demand. IGTR has setup facility to cater the demand of modern day product development through reverse engineering.

Application for Mold and Tool Making

- Tool reconstruction
- Scan data for generation of milling tool paths.
- Documentation of actual 3D data at tool release.
- Scanning of design models for further processing in CAD Documentation
- Comparison to actual data with nominal data (part to CAD)

COMET L3D 5M – Technical Data

Camera Resolution	2448x 2050
Measurement Volume in mm	45 field of view : 45x 38x30
	75 field of view : 74x62x40
	250 field of view : 260x215x140
	500 field of view : 480x400x250

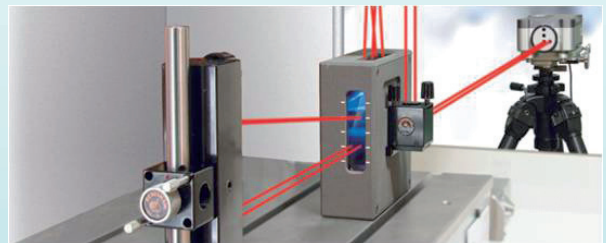
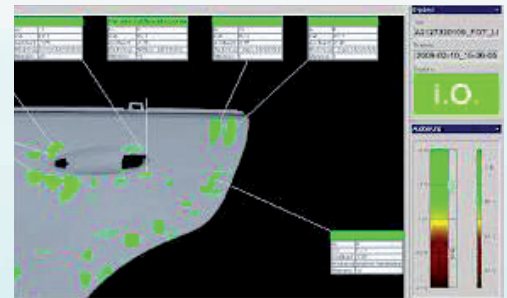
Laser Calibration of Linear Movement

To ensure quality of machining it is necessary to reassess the accuracy of the movement of the machines due to wear and tear because of continuous use.

Laser Calibration System

(Calibration of CNC M/c linear movement accuracies)

- Renishaw XL-80 For Linear Measurement
- Reverse Engineering through Geomagic 3D software



TECHNICAL FACILITIES

The facilities of IGTR, Aurangabad allow for the design and manufacture of sophisticated medium and small-size tools. These tools are in conformity with international standards. The latest hardware and software ensure the professional design of tools and 3D solid modeling. Surface modeling and analysis for the product development long with reverse engineering.

IGTR, Aurangabad has ultra-modern, state-of-the-art Tool Room Machines under single roof. The wide spectrum of sophisticated machines include all latest & advanced machines which can cater to various requirements of the customers.

ULTRA MODERN STATE-OF-THE-ART MACHINE SETUP NEW INDUCTIONS

3D Manufacturing Metal

EOS M 280 - 255x355x250

CNC Jig Grinding

HAUSER H45 - 400 700x500x500

CNC-5 AXIS MACHINING

Hermle B300

CNC TURN / MILL

Hass -ST 20 SSS

CNC MACHINING CENTRE

Deckel Maho DMC 100 V

Deckel Maho DMC 70 V Hi-dyn

Deckel Maho DMC 70 V

Makino V-33

Hartford HB2150 SG

Hass - VF2SS

Hass - VF1

Hass - VM6

Ace Micromatic (MCU 350)

CNC MILLING MACHINE

Mikron-UME 710

Mikron-WF 52D

CNC 5 Axis Mill Turn

HERMLE C 62 MT - 1200 X 1300 X 900

ROTARY Ø 1200

CNC WIRE CUT

Agiecharmilles Cut 400-1400 X 900 X 510

MANUFACTURING SOLUTIONS

CNC CYLINDRICAL GRINDER

Studer-S33

CNC HIGH PRECISION LATHE

Schaublin 125 CCN

CNC LATHE

Gildemeister CTX 400 E

Hass - SL20

HONOR - V100C

PRECISION SURFACE GRINDER

Jung JF 520

Kent WM 2

ELB Optimal 8550 ND / 4250 ND

CYLINDRICAL GRINDER

SCHLEIF SA 5/2 U x 1000

SCHLEIF SA 5/2 U x 630

JIG BORING

Hauser B-3 DR

CNC SURFACE GRINDER

Blohm Planomat HP 408

3D Printing Plastic

EOS P 396 - 255x355x250

CNC 5 Axis High Precision Machining centre

HERMLE C32U / 650 x 650x 500

CNC WIRE CUT

Charmilles Robofil 510

Charmilles Robofil 300/290

Agie Charmilles 440CCS

Electronica Ultima

Electronica Ultra Cut S1

CNC SPARK EROSION

Charmilles Roboform 20

Charmilles Roboform 40

Agietron Advance

Mitsubishi E A 30

HYDRAULIC PRESS

Dunkes HZS 63 T

MECHANICAL PRESS

Zeulenpoda 125 T

Narendra 300 T

INJECTION MOULDING

L & T Demag DL 250 T

Battenfield DBA 100 T

CNC CMM

Carl-Zeiss PRISMO Vast 5

Brown & Sharpe Hexagaon Metrology

QUALITY ASSURANCE

3D SCANNER

Resolution :- 2448X2050

Measurement Volume in mm³ :-

45 field-of-view: 45 x 38 x 30

75 field-of-view: 74 x 62 x 45

250 field-of-view: 260 x 215 x 140

500 field-of-view: 480 x 400 x 250

3D Point Distance in µm :- 45 / 75 / 250 / 500

TOOL MAKER'S MICROSCOPE SURFACE FINISH TESTER PROFILE PROJECTOR

NABL ACCREDITED CALIBRATION LAB

Calibration Services are offered for precision measuring equipment like:

VERNIER CALIPER • MICROMETER • HEIGHT GAUGE • LEVER DIAL • PLUNGER DIAL

LASER CALIBRATION SYSTEM

Calibration of CNC machine linear movement accuracies

RENISHAW XL-80 - For Linear Measurement



INCREDIBLE TOOLING SOLUTIONS

The Technology Centre with its objective to ensure study flow of services for product design and development using simulation has delivered its services to the utmost satisfaction of esteemed customers of IGTR. The deliverables being developed are as :

DESIGN, DEVELOPMENT & MANUFACTURING WITH SIMULATION FOR :

- PRESS TOOLS
- PLASTIC MOULDS
- DIE CASTING DIES
- SPECIAL PURPOSE MACHINES
- JIGS & FIXTURES
- GAUGES
- REVERSE ENGINEERING
- PRODUCT DEVELOPMENT

CRITICAL SHEET METAL COMPONENTS BEING DEVELOPED

- CLUTCH PARTS
- BRAKE SYSTEM
- FRONT / REAR AXLE PARTS
- ENGINE GASKETS
- KITCHEN SINKS
- ELECTRICAL PARTS ETC.

WIDE RANGE OF PLASTIC PROCESSING TECHNOLOGY DEVELOPED COMPONENTS

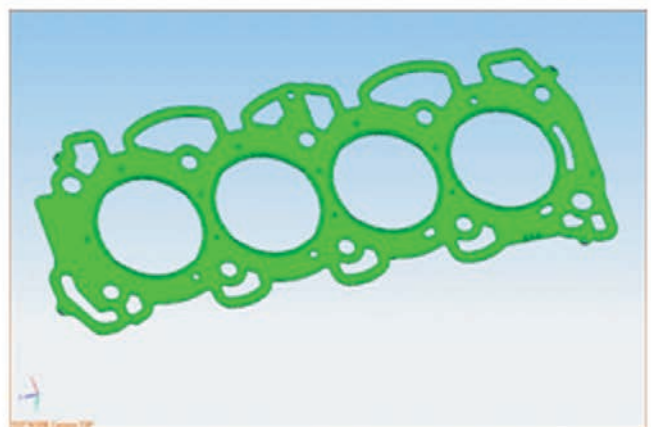
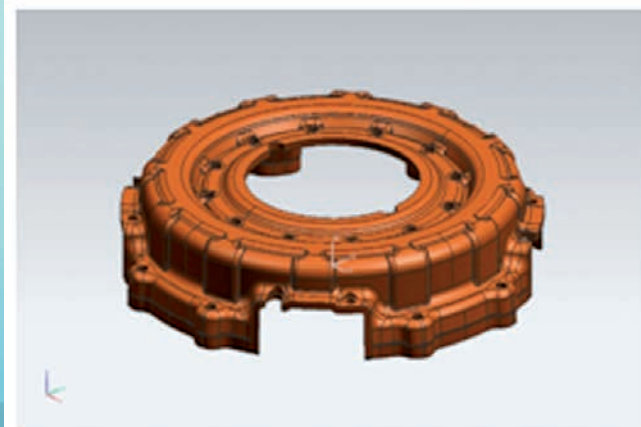
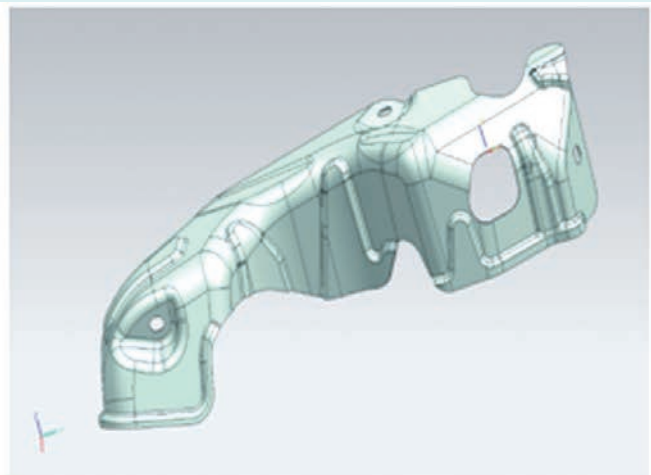
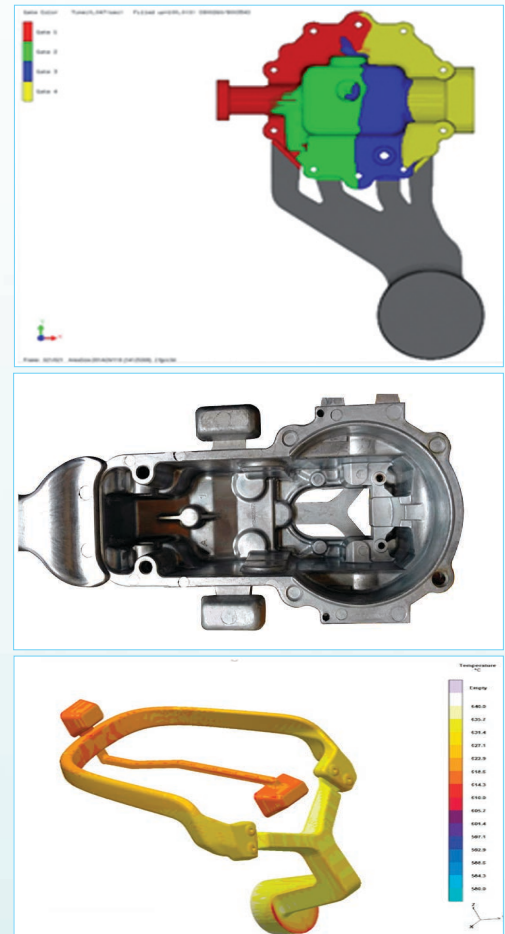
- MCBs FOR SWITCHGEARS
- LID & BASE FOR CONTROL BOX
- WASHING MACHINE PARTS
- BEARING CAGE
- SCISSOR
- HANDLE
- KITCHEN SINKS PARTS

MULTI TECHNOLOGY SOLUTIONS FOR NON FERROUS MATERIALS THROUGH VARIOUS CASTING PROCESSES

- 4 & 2 WHEELER WHEEL RIM DIES
- 2 WHEELER CLUTCH SYSTEM DIES — (WHEEL CLUTCH, HUB & HOUSING)
- LID, BASE & CORNER JOINTS FOR CONTROL BOX
- CARBURETORS
- ENGINE COVER
- CLUTCH COVER
- CHAIN COVER
- CYLINDER HEAD

NEW TECHNOLOGY UNDER INDUCTION

- PROCESS AUTOMATION LAB
- ADVANCE ROBOTIC LAB
- ADVANCE WELDING LAB
- INTELLECTUAL PROPERTY LAB
- INCUBATION CENTRE
- VACUUM HEAT TREATMENT





SHAPING THE FUTURE

IGTR, Aurangabad philosophy of Integrated Solution for Indian industrial growth is based on the provision of trained, skilled and innovative manpower. Well structured, modular, practically oriented long term training programmes are the main focus of the IGTR, Aurangabad. However, having realized the need to update and upgrade the skills of the existing technical personnel, IGTR, Aurangabad have introduced numerous courses both regular and tailor made to meet the specific needs of the industry. All courses are regularly upgraded to keep abreast with global technological advancements. Various levels of courses, viz., Certificate, Advance Certificate, Master Certificate, Advance Diploma, Post Diploma, Post Graduate Diploma offered by IGTR, Aurangabad are accepted by the industries in India and abroad for employment purposes.

WIDE SPECTRUM OF TRAINING COURSES

WIDE SPECTRUM OF TRAINING COURSES

Long term courses	Advance Diploma in Tool & Die making	ADTDM	SSC Pass Outs
	Diploma in Mechatronics	DIM	
	Certificate Course in Machinist (Tool Room)	CCMTR	
	Post Graduate Diploma in Tool Design & CAD/CAM	PGDTD & CC	B.E. Graduates
	Post Graduate Diploma in Mechatronics	PGDIM	
	Post Diploma in Tool Design & CAD/CAM	PDTD & CC	B.E./DME Graduates
	Post Diploma in Tool & Die Manufacturing	PDTDM	
	Post Diploma in Computer Aided Engineering (Mfg.)	PDCAE	
	Post Diploma in Mechatronics	PDM	
	Post Diploma In Product Design	PDPD	
	Post Diploma In CNC Machine Maintenance	PDCMM	
	Post Diploma In VLSI & Embedded System	PDVLSI	
	Post Diploma In Industrial Automation / Robotics	PDIAR	
	Advance Certificate Course in Tool Design & CAD/CAM	ACCTD & CC	ITI Pass Outs
	Advance Certificate Course in Tool & Die Manufacturing	ACCTDM	
	Advance Certificate Course in CNC Machining	ACCCM	
	Advance Certificate Course in Machine Maintenance	ACCCMM	
Medium term courses	Advance Certificate Course in Welding Operations	ACCWO	SSC Pass Outs
	Certificate Course in CNC Turning & Milling	CCCTM	
	Certificate Course in Tool & Die Making	CCTDM	SSC Appeared
	Certificate Course in Machine Tool & Welding Operations	CCMTO & WO	
	Certificate Course in Machine Maintenance & Welding Operations	CCMM & WO	BE / DME / IT (Full Time Courses)
	Master Certificate Course in Computer Aided Tool Engineering	MSCCATE	
	Master Certificate Course in CAD/CAM	MCCC	
	Master Certificate Course in Tool Design	MCCTD	
	Master Certificate Course in CNC Technology	MCCCT	
	Master Certificate Course In Welding Operations	MCCIW	
	Master Certificate Course In Product Design	MCCPD	
	Master Certificate Course In Structural Design & Analysis	MCCISD & A	BE / DME / IT (Part Time Courses)
	Master Certificate Course In Industrial Automation & Robotics	MCCIA & R	
	Certificate Course in Computer Aided Tool Engineering	CCCATE	
	Certificate Course in Mechatronics	CCM	
	Certificate Course in VLSI & Embedded System Design	CCVESD	12th Pass/BSc.Grad.
	Certificate Course in CAD/CAM	CCCC	
	Certificate Course in Tool Design & CAD/CAM	CCTDCC	
	Certificate Course in Tool Design	CCTD	
	Certificate Course in CAD & Quality Assurance	CCCQA	SSC Pass
	Certificate Course in CNC Operations (Lathe, Milling, WEDM & EDM)	CCCO	
	Certificate Course in CNC Machine Operations-Lathe & Milling	CCCMO(L & M)	SSC Appeared
	Certificate Course in CNC Machine Operations-WEDM & EDM	CCCMO(W & E)	
	Certificate Course in CNC Machine Operations-Lathe	CCCMO(L)	
	Certificate Course in CNC Machine Operations-Milling	CCCMO(M)	

C] SHORT TERM COURSES : CAD/CAM/CAE, Tool Design, Civil / Architechral Design, 3D Printing, 3D Scanning, CNC Programming & Machining, Automation, Robotics, Welding, Repair & Maintenance of Electrical & Electronics Gadgets, Computer Hardware Maintenance & Networking

- Skill Development courses for B.Sc. graduates, BE/Diploma holders, ITI Technician & under graduates / Technician & Entrepreneurs.
- Tailor made courses for industries / institutes / organization / Foreign Nationals can also be conducted on specific requirement.

SCALING UP THROUGH SKILLING IN AUTOMATION

MECHATRONICS

With a view to nurture & fulfil the modern day industry high technology needs for productivity / process improvement IGTR Aurangabad is developing skilled manpower through career oriented / skill development training programmes in Automation & Robotics.

- TO UNDERSTAND THE BASIC CONCEPTS ASSOCIATED WITH THE DESIGN
- TO STUDY ABOUT THE DRIVES AND SENSORS USED IN MACHATRONICS
- PROGRAMMING OF DISTRIBUTING STATION
- PROGRAMMING OF HANDLING STATION
- PROGRAMMING OF ASSEMBLY STATION
- PROGRAMMING OF PROCESSING STATION
- PROGRAMMING OF TESTING STATION
- PROGRAMMING OF SORTING STATION

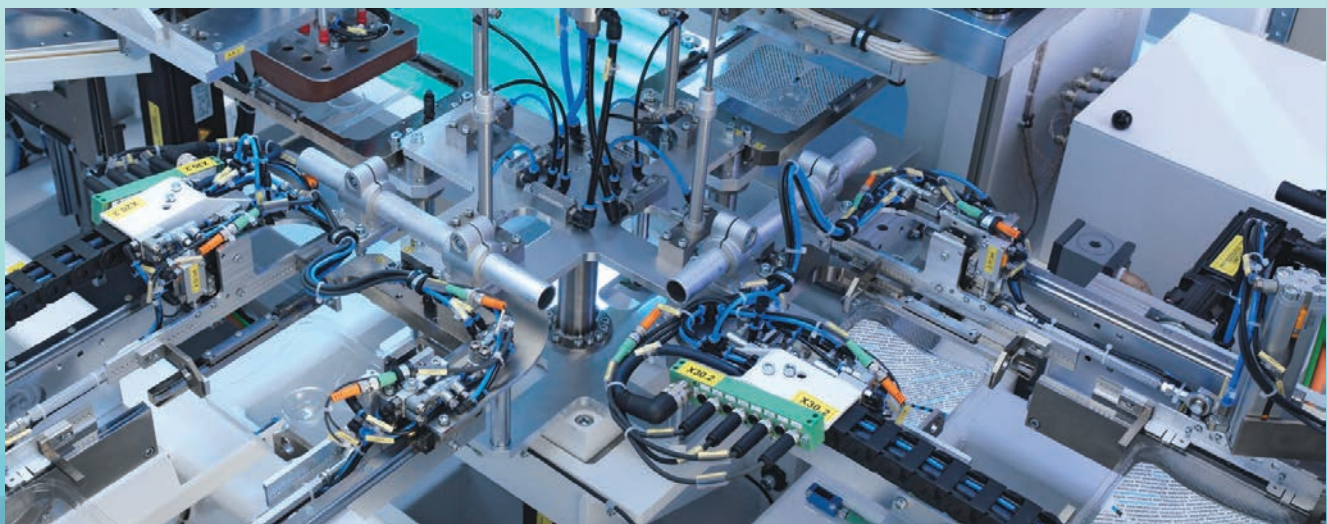
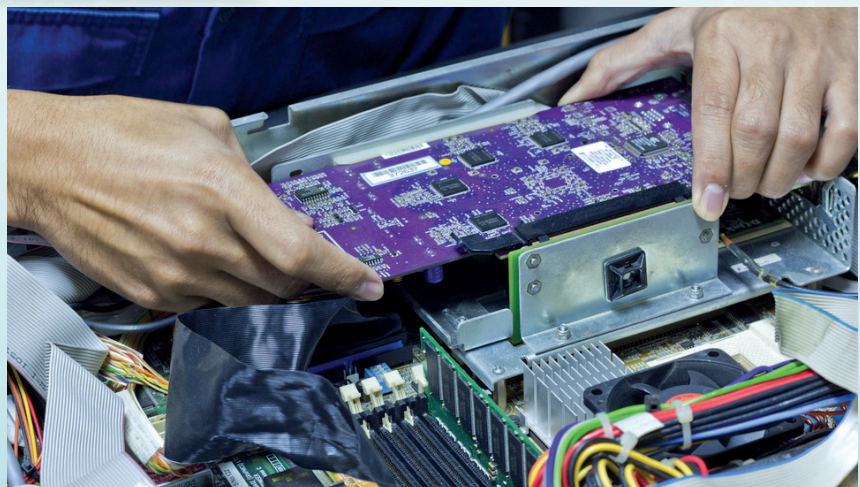
ROBOTICS

- TO UNDERSTAND THE BASIC CONCEPTS ASSOCIATED WITH THE DESIGN
- FUNCTIONING
- APPLICATIONS OF ROBOTS
- TO STUDY ABOUT THE DRIVES AND SENSORS USED IN ROBOTS
- TO LEARN ABOUT ANALYZING ROBOT KINEMATICS AND ROBOT PROGRAMMING

3D PRINTING / SCANNING

Innovative product development is the need and demand of the day. Conceptualising ideas and converting in to realisation can be done through 3D printing / Scanning.

- CONCEPTUALISE IDEA
- DEVELOP CAD MODEL
- PRINT THE CONCEPT
- SCANNED THE PRODUCT
- PRINT & DEVELOP PRODUCT



RESOURCES

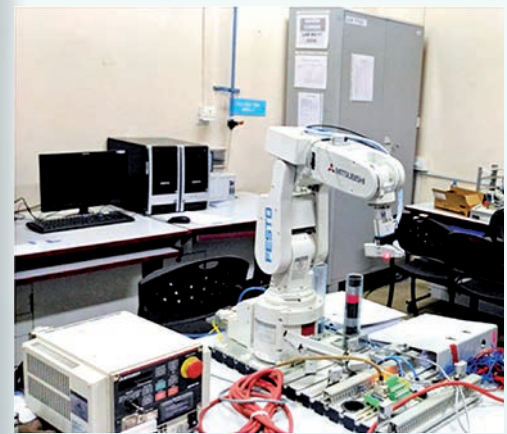
TRAINING

Training facilities call for sophisticated equipment to keep pace with the development elsewhere in the world. It also demands a team of teaching staff, who have acquired practical & theoretical knowledge to equip the trainees to act independently and to lead a team on the shop floor.

Wide Spectrum of Latest & Advance Machine set up

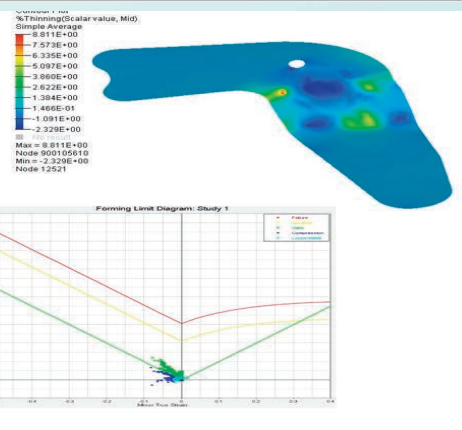
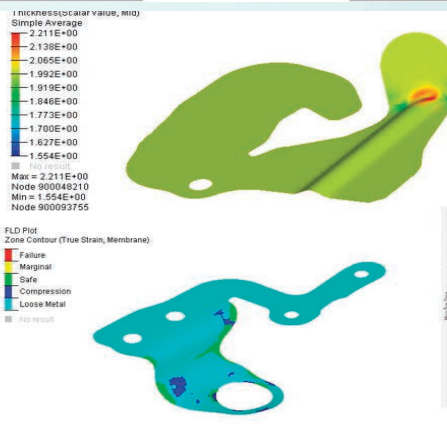
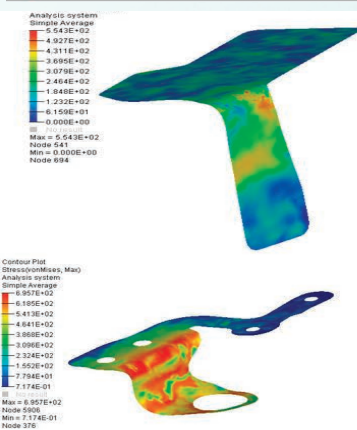
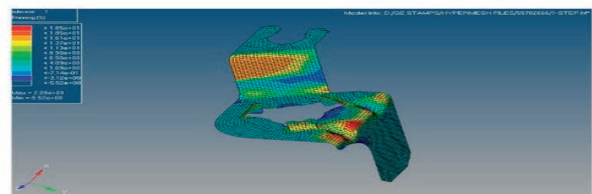
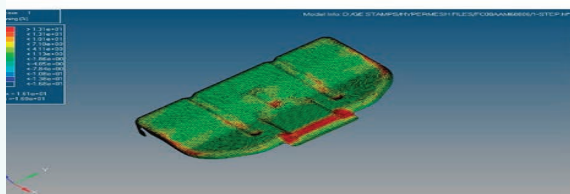
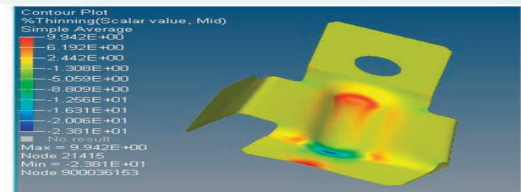
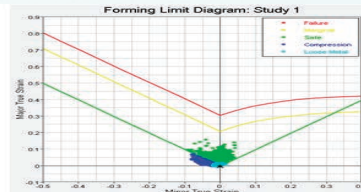
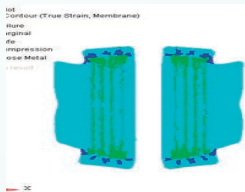
CNC Milling	Precision Surface Grinder	PLC Programming Kit
Hass - TM - 1	Proth PSGS3060BH	Siemens S7 300, S7 1500
BFW Surya - VF30	Kent	Allen Bradely 25
Deckel Maho 50 T	Kirloskar	
Jyoti - PX30	ELB India	Pneumatic Training Kit
ACE-MCV 350	Automation	Festo (Dualstation) (Basic, Electro & Adv.)
CNC Lathe	Embedded Kits	Spark Erosion
Hass - TL 1	VLSI Kits	Electronica - Expert
Jyoti - DX 150	Mechatronics Project Kits	Electronica - ZNC
ACE-Jobber Junior	Robotics	
ACE-Tutor	Cylindric Grinder	WELDING
CNC Wire Cut	HMT K 130	Arc
Electronica - Ecocut	Parishudh	Gas
Electronica - Sprincut		Tig
		MIG / MAG

MoU has been signed with Dr. Babasaheb Ambedkar Marathwada University (BAMU) Aurangabad to conduct Post Graduate courses of M.Tech. & M. Voc. jointly and also MoU has been signed with The Welding Institute (TWI) Cambridge UK for setting up advance welding lab including Laser, Seam, Spot, Welding Simulation and other advance welding equipment and developing courses jointly.

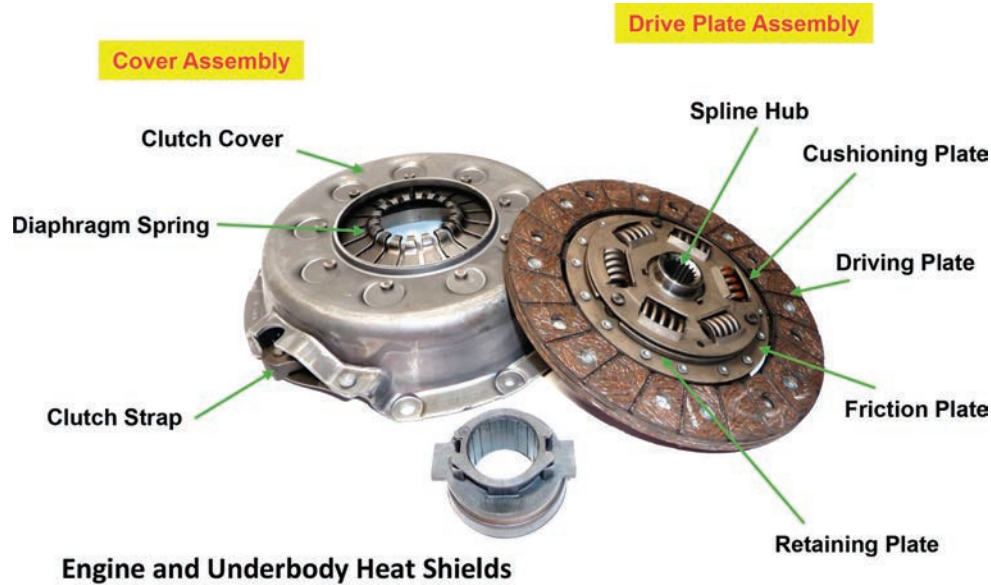


CAD/CAM/CAE & CNC Prog. Softwares

- AutoCAD
- CollabCAD
- Solidworks
- Pro-E
- CATIA
- Unigraphics
- DelCAM
- MasterCAM
- Ideas
- Ansys
- Hypermesh
- Nastran
- CNC Programming - Lathe
- CNC Programming - Milling
- CAD /CAE for civil / Architectural Engineering
- CCNA (FANUC/SINUMERIK/HEDENHEIN)
- (FANUC/SINUMERIK/HEDENHEIN)



Design, Development & Manufacturing of 4-wheeler Clutch Components



Engine and Underbody Heat Shields

- a. Multi layer
- b. Single Layer SS/ Corrugated



Heat Shields

Thermal Acoustical Protective Shielding



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