**Pakistan Industrial Technical Assistance Centre** (PITAC), **Lahore**

***Training Programme of***

**“Cutting Tools & Gauge Design”**

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| **Sr No.** | **Course Contents** |
| **Week-1** | * **Introduction to Cutting Tools**
* Parts of Single Point Tool
* Types of Form Tools

 (Flat & Circular Form)* Design Aspects of Flat Form Tool
* Selection of Material
* Introduction of Piercing Die
* On Board Training / Practicing by Analytical Method
 |
| **Week-2** | * **Introduction and Application of:-**
* **Tolerance**
* Advantages of Tolerance
* Types of Tolerance
* Tolerance Showing Method and its calculations
* **Allowance**
* Types of Allowance
* **Fits**
* Types of Fits
* ***Exercise of Flat Form Tool***  (By using Calculation Method)
 |
| **Week-3** | * Definitions of **Gea**r, **Pinion** and **Rack**
* Difference between **Gear** and **Pinion**
* Use of **Rack** and **Pinion**
* Nomenclature of a **Gear**
* Types of **Gears**
* Left and Right Hand **Helical Gears**
* Gearing Systems (**D.P., Module & C.P System**)
* Difference between **D.P., Module & C.P System**
* Calculations of **Spur Gears**
* Practice of Spur Gear Calculations (Assignment No. 1)
* ***Briefing and Practicing of Circular Form Tools***
* On Board Practice
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(**Cutting Tools & Gauge Design Cont…. P/2)**

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| **Sr No.** | **Course Contents** |
| **Week-4** | * **Introduction of Threads**
* Primary and Secondary Function of Threads
* Threads types and their use including Knuckle (Bottle) Threads
* Trigonometry
* Parts of Tri-angle
* Trigonometric Functions
* Calculations of a right angle tri-angle
* Practice of calculations of a right angle triangle
* Introduction of Various types of Industrial Standards
* Practice / on Board Training
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| **Week-5** | * **Definition of Heat Treatment**
* Advantages of Heat Treatment
* Classifications of Steels
* Hardness Measuring Scales
* Heat Treatment Processes

 (Hardening, Tampering, Annealing, Normalizing, Carburizing)* Introduction of Induction Hardening Machine
* Brief introduction of Welding & Brazing and their difference
* Selection of Material for Cutting Tools
* Practice / on Board Training
 |
| **Week-6** | * ***Design Aspects of Gauges***
* Methods of Designing Ring, Plug, Snap Gauges
* Visit of different shops of PITAC for Practical observation
* **QCT** (Quick Check Test)
* **Final Evaluation Test + Viva**
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