GOVERNMENT ENGINNERING COLLEGE, VALSAD

MECHANICAL ENGINNERING DEPARTMENT

A Report
Of
Workshop on

Geometric Dimensioning & Tolerances

By
Dr Bhavin Desai, SVNIT Surat
Mr Vipul Ghadiali MD, From
M/s Sharad Micro Die & Engineering Works

Organized

Under RUSA Scheme
Component 9 Equity Initiative

❖Event Details

- **Name of Seminar:** Importance of Geometric Dimensioning & Tolerances
- **Name of the speaker:** Mr Vipul Ghadiali Manger M/s Sharad Micro Die & Engineering Works, and Dr. Bhavin Desai TA, SVNIT Surat
- **Date of Seminar:**29-02-2020
- **Number of Participants:** 107 students + 4 Faculties
- **Objectives of Seminar:**
  - To understand the concept of GD & T in engineering field.
- **Outcome of Seminar:**

  Students will be able to;
  - Read the actual industrial drawings and understand the different dimensions provision in Industrial Engineering Drawing sheet.
  - Understand the tolerances provision for any assembly component.
- **Event description:**

Mechanical Engineering department of Government Engineering College Valsad has organized a one day workshop for mechanical engineering students on "Geometric Dimensioning & Tolerances". The aim of the workshop is to make students aware about basic concepts of geometric dimensions & tolerances provided in engineering drawing sheets of industries of any component.

The workshop started with welcoming guest by Head of the Department Prof S V Dammania and few encouraging words about the current scenario in industry. The workshop was divided in two session, in first session Dr B V Desai sir has presented and explained to students about tolerances and how to read engineering drawings. In second half session Mr Vipul Ghadiali sir has brought some of the measurement instruments which were given to students for hands on practice. Mr Vipul Ghadiali Sir has given brief introduction about GD & T to the students of 4th Semester mechanical engineering department. Sir has said that Geometric Dimensioning and Tolerancing (GD&T) is a design approach and manufacturing mechanism that helps engineers and designers communicate how to bring a part design to life. When documented correctly using GD&T, it is possible to build a part that exactly matches its on-paper plans.

The drawing is the controlling document that ensures the vendor is creating precisely what the customer's design requires. Machinists and quality engineers will use GD&T, print dimensions, and drawing notes to develop a manufacturing process and inspection methodology that will construct high-precision components matching the designer's original vision. Proper print detailing will also help with measurement correlation to aid in the communication between customer and vendor.

GD&T uses a symbolic language to indicate how significantly part features can deviate from the geometries listed in the design model. This language contains all relevant details involved in fabrication, including dimensions, tolerances, definitions, rules, and symbols that communicate a component's functional requirements.

Dr Bhavin Desai sir has explained in brief about various tolerances methods used in engineering drawings. Sir has also explained students about how to read engineering drawings. Sir has explained why it is used widely in industrial platform in brief points like; It is a simple and efficient method for describing the tolerance mandated by the designer of the part. It eliminates ambiguities as to what Datum features are to be contacted to establish the Datum planes and/or Datum axis that are to be used for locating other features. All inspection will result in the same result – the dimension is within or out of tolerance. It simplifies inspection because hard gages can often be utilized and inspection fixtures are often mandated which simplifies inspection for production quantities. It forces the designer to totally consider function, manufacturing process, and inspection methods. The result is larger tolerances that guarantee function, but reduce manufacturing & inspection costs. Also the "bonus" or extra tolerance for certain conditions can result in significant production cost savings. In addition the time to analyze whether a missed dimension is acceptable is dramatically reduced. At the end of the workshop a worksheet is distributed among the students which includes exercises related to GD & T, students are asked to solve it. After the exercise solving methods sir has also answered doubts of students related to topic.

❖Glimpses of Workshop:


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