REPORT ON SEMINAR ON SOLIDWORKS PRESENTED BY MR. BRIJESH MISHRA, MR. SWAPNIL AND MR. RUDRESH VYAS FROM ENGINEERING TECHNIQUE PVT. LTD.

A seminar on Solidworks was organized at D.A.D education campus, Mehamdabad for diploma and degree mechanical engineering faculties on 11th August,2018 morning 10:30 to 12:30 pm.

The initial session was technical in nature, wherein the presentation was given by Mr. Brijesh Mishra. The presentation consisted of the working of SolidWorks. We were shown a 3D model of Miter Saw and its designing in SolidWorks. A part assembly, i.e a yoke was deleted from the 3 D drawing and was redrawn in 2D with extension in 3D. The whole exercise was conducted to enable us to understand the ease with which part drawings were created in 2D, extended to 3D and integrated to assembly drawing.

Some of the striking features regarding the working of Solidworks are as mentioned below:

- ✓ The motions were designed, table motion, angular motion and linear motion and also the travel restrictions were also specified for the miter saw. The part drawing of the yoke was very easily possible in 2D with auto-dimensioning available. This feature of auto-dimensioning helped any designer to fully define a manufacturing drawing that is easily understandable by the workers at the shop floor.
- ✓ A toggle window is available at the Solidworks window for multiple selection of edges for fillets. Also, most of the in-built features of Solidworks were similar to windows to which most of the users are highly accustomed to.
- ✓ The dimensions along with the part drawing get integrated with the assembly. But when we view the assembly as a whole, and find that a part

is missing, we can directly add it from the assembly module without switching to part modeling module.

✓ For Eg. For adding a screw, we would require the standard dimension wherein we can make the selection from the library.
✓ If parts are colliding, we can visualize it in the assembly drawing and rectify the dimensions such that the interaction of parts is avoided.
✓ Editing in the assembly drawing is automatically reflected in the part modeling.
✓ Another incredible feature of this software is available of all the detailed drawings in 2D.
✓ The production drawing in 2D is done automatically in SolidWorks.
✓ The drawings are created as in Engineering Graphics drawing sheet, along with the title block. In the title block, the material selection can also be defined along with weight which is again reflected in 2D and 3D drawings along with assembly drawings.

- ✓ Animation in 3D is also possible.
- ✓ A most important and significant feature of VALIDATION is also available in Solidworks.
- ✓ This feature enables the user to select the material and calculate the reaction forces on any particular part (yoke in this case) through SIMULATION.
- ✓ If the demand of the production department is to decrease the factor of safety and reduce weight, this can be achieved by making the load analysis and removing material from those parts where the distribution the load is minimal.
- ✓ Here, we can make changes in the design by cutting pockets and adding ribs. We can use a feature available in the library or we can also directly DRAG & DROP the part drawings made from previous assemblies.
- ✓ The feature of optimization which includes the economic aspect is also available wherein each machining or manufacturing process can be economically analysed and the best alternative decision can be arrived at.

The session was quite interactive as the faculty got the answer to a lot of queries.

Also the major difference between SOLIDWORKS and CREO was also brought into limelight.

➢ SolidWorks is comparatively easy to use, more user-friendly
➢ The different modules are integrated in one window itself, whereas the modules of designing in 2D, 3D and Simulation are separate in CREO
➢ The market penetration of SolidWorks is almost 50 to 60%. This creates an ample opportunity for placement.
➢ This is the only parametric software available in the market which integrates 2D, 3D, part drawings and assembly drawing (Just by a few clicks).
➢ The optimization module is available in SolidWorks, hence it also takes into account the economic considerations of manufacturing.
➢ The PC configuration required is only 4-8 GB RAM.

The advancement in technology is "MODEL BASED DEFINITION", where the draft making and manufacturing from printouts is proposed to be eliminated. Instead the production guy would simply need a tablet where he would be able to visualize the drawings in 3D, rotate the same in 3D and apply the same in manufacturing. This is the latest development in terms of digitalization in the manufacturing sector.

Engineering Technique has more than 600+ customer base in Gujarat with companies ranging from textile, pharmaceutical machinery, medical equipments, power machnineries like transformers and rectifiers and marine equipments etc.

The session was very educative and informative and we definitely feel that a thorough and updated knowledge of SOLIDWORKS will definitely give the students an edge over his peers.