Changed Habits to Impart Practical Drawing Course

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Abstract:

Today most of the engineering graduates are learning the engineering drawing course using computer software interface. However, the skills developed by the students are not at the satisfactory level. In order to meet this objective, the different ways of engaging the drawing courses are briefly discussed in this article.

IndexTerms - Engineering Drawing, Machine Drawing.

INTRODUCTION

In present scenario, engineering graduates are learning the engineering drawing course using computer software interface. The drawing skills are developed only with thorough practice. This practice is not just in creating the drawings but also one has to be good at reading the drawings [1].

METHODOLOGY

Now days, the drawings are created with the use of computer software. There are lot of softwares available for use in both commercial space and academic space. Looking into all these, the course instructor has to be aware of all these different ways and apply the best to teaching.

For a first time learner, the student should create the drawings using the manual drawing instruments. The drawing skill can be developed easily with this first basic approach of manual drawing. The second approach is taking an out of classroom example and creating the engineering drawing.

RESULTS AND DISCUSSION

A learner who uses the manual drawing instruments will get to see his or her own drawings, or drawing steps, and if mistakes happen, one can easily rectify.

This is simple in terms of steps yet so essential. A student will learn the planned drawings taking classroom exercises. But the same student will effectively apply the learnt drawing skills to draw a out of classroom example [3].

The third approach is to apply PBL approach, i.e. problem based learning. A student will be given a problem where the solution to that is possible only through drawings. The learnt drawing skills can be applied here in this PBL exercise and thereby enhancing the student's drawing skill [4].

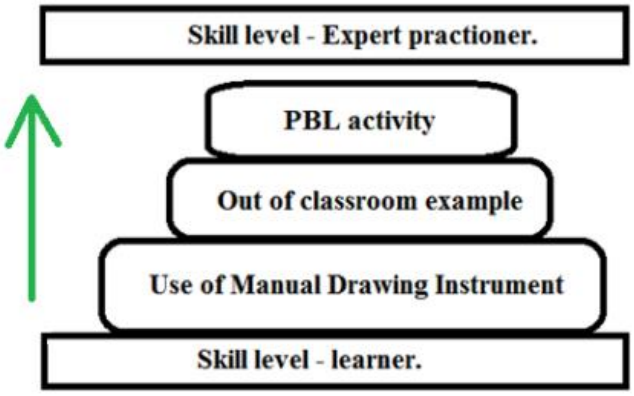

Fig. Different ways of teaching drawing course.

Electronic brake force distribution (EBD or EBFD): It is a type of vehicle brake technology that automatically adjusts the amount of force given to each brake according on road conditions, speed, load, and other factors. EBD can deliver more or less braking pressure to each wheel to maximize stopping force while retaining vehicle control when used in conjunction with anti-lock braking systems. Because the front end of the vehicle carries the most weight, EBD applies less braking pressure to the back brakes, preventing the rear brakes from locking up and causing a skid. During initial brake application.

EBD distributes more braking pressure to the rear brakes in some systems before the consequences of weight transfer become apparent. The EBD, as a subsystem of the ABS system, is responsible for controlling the rear wheels' effective adhesion use. In a partial braking operation, the pressure of the rear wheels is approximated to the ideal brake force distribution. To accomplish this, the traditional brake design is tweaked in the direction of rear axle over baking, and ABS components are utilized. EBD relieves pressure on the vehicle's hydraulic braking force proportioning valve.

In terms of adhesion utilization, driving stability, wear, temperature stress, and pedal force, EBD optimizes the brake design. To reduce yaw accelerations during turns, EBD may be used in conjunction with ABS [6] and electronic stability control (ESC). The rotation of the vehicle around its vertical centre of gravity is called "yaw" (turning left or right). The car is under steering(over steering) if the yaw sensor detects less(more) yaw than the steering wheel angle should produce, and ESC activates one of the front or rear brakes to spin the car back into its planned route. If a car is performing a left turn and starts to under steer

Components of the System As originally said, the system should be compact enough to fit in a room corner. All moving parts should be securely fastened and compacted. criterion. It is an anatomical application. Here are some examples of this section.

Machine height design Hand operation requires a lot of energy. Machine lighting condition. Chances of Failure The damages sustained by the owner in the event of a component failure are essential to the design criterion. When designing the mechanical system, a high factor of safety is used to ensure that there are fewer risks of failure. Additionally, periodic maintenance is essential to keep the machine running smoothly.

Theoretical aspects of the work Using Pro Engineer and Ansys as commercial CAD and FE programmes, the finite element method is used in this study. The following chapter covers the principles of applied theories, assuming the reader has a basic understanding of structural mechanics, machine components, and finite element method fundamentals.

Finite element method The finite element method (FEM) is a method for approximate solutions of partial differential equations. The domain of interest is divided into finite elements on which the solution is approximated piecewise polynomials.

Newton-Raphson method The Newton-Raphson technique is an iterative approach to solving nonlinear equations and equation systems. For non-linear problems in FE computations, the technique is utilised, and the relationships between force and displacement are depicted in Figure for one degree of freedom. The Newton-Raphson method is performed as follows:

The displacements are determined once the load is applied. This technique is repeated until the solution converges, that is, when it achieves a specific value or level.

The iterative procedure is as follows Material nonlinearities Nonlinear behavior is the result of a nonlinear stress-strain relationship. As demonstrated in Figure.

CONCLUSION

The engineering drawing course can be learnt using manual drawing instruments, out of class room activity and using PBL approach.

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