

DESIGN YOUR OWN FUTURE IN ENGINEERING

Introduction –[1] Engineering is a noble and well-respected career because of the high standards engineers hold themselves too, it requires imagination and hard work. [1] Einstein asserted that imagination is more important than knowledge, for knowledge is finite whereas imagination is infinite. Our imagination is what drives our world forward, it's what moulds our future.

COMPUTER AIDED DESIGN

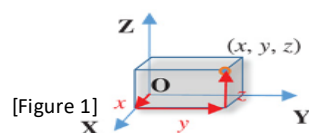
CAD

[2] CAD assembly pre-processing mainly consists of generating a finite element model (FEM), based on certain assumptions about the physics, and transforming and meshing the resulting geometric model to produce a more solver input model.

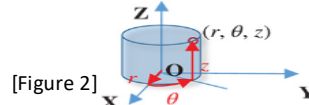
[3] A model is represented by dimensions, geometric relationships, and features that link different parts of a model to each other, Each of these logical features is called a parameter.

[4] Any geometric element in a three-dimensional space has six degrees of freedom. Below are three of the most common used coordinate systems.

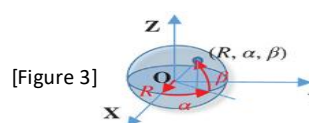
Cartesian coordinate system



Cylindrical coordinate system



Spherical coordinate system



[2] Computational simulation is a critical component in the modern engineering design process, where it is used to validate the design of large assembly structures.

COMPUTER AIDED ENGINEERING

CAE

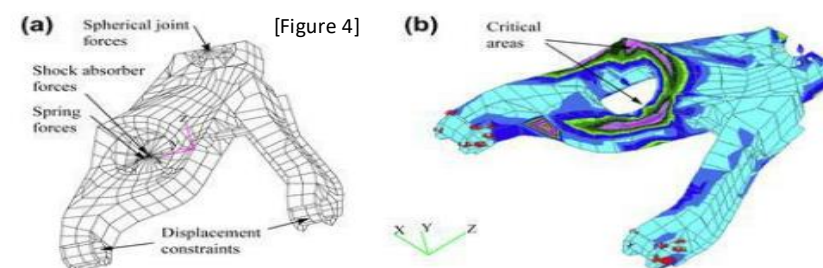
[3] SOLIDWORKS is a popular 3D design software, it uses several disciplines to correspond to different designs and analysis approaches. They are as follows:

Two Dimensional Drawings	Surface Design	Core Mechanical Design	Sheet Metal	Sustainability
Motion Analysis	Weldments	Simulations	Mold Making	Electrical

[2] Currently, the cost and scalability of simulation technologies is not only restricted by the computerization time but also by the time – consuming task of converting computer aided design assemblies to computer aided engineering models.

[5] Software tools that support evaluations of Designs.

Performance	Structural Analysis	Fatigue	Reliability	Energy Efficiency	Durability
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[2] Most Computer Aided Software offer tools for partitioning and de-partitioning the model without disturbing the manufacturing-orientated geometry . these operators are commonly called Virtual Topology Operators.

[3] Industries that Utilizes CAD and CAE For Design Application

Medicine

Renewable Energy

Aerospace

Robotics

High Tech Electronics

Automobiles

Construction

Conclusion

Engineering is a fascinating career. You will always be at the cutting edge of possibility.

Your options are limited only by your imagination and ambition.

Everything in our world that has been manufactured has had an engineer's imagination refining it.

Let your imagination be the driving force for your future.