


Chapter 4

Mechatronics Engineering in the Modern World and Its Use in the Construction Industry

Aditya Singh

 <https://orcid.org/0000-0001-9347-5627>
Lovely Professional University, India

ABSTRACT

Mechatronics engineering is a branch of engineering made by combining several other main branches as well as derived branches of engineering, which comprises mechanical engineering, electrical engineering, electronic engineering, computer science engineering, product engineering, robotics, and so on. In the initial development of mechatronics engineering, only mechanics as well as electronics were combined to form it, but as the time passed and with the help of technological advancements, it was expanded to combine other derived and subbranches of engineering. In this book chapter, mechatronics engineering is briefly explained, and how it originated as well as came to current level. It also highlights the role of mechatronics engineering in the construction sector, as well as how it transformed the current construction practices. It also briefly talks about building automation, CAD, and structural dynamics which are a form of applied mechatronics that help in the modern construction industry in its own ways.

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INTRODUCTION

Mechatronics Engineering is also known by the name of Mechatronics, which is engineering's interdisciplinary branch, which can concentrate on the way to incorporate different main branches of engineering like Electrical Engineering, Mechanical Engineering as well as Electronics Engineering, in addition to other branches or subbranches of engineering like Robotics, systems, computer science, product engineering, control, as well as telecommunications. With the advancement of technology as the time passed, numerous engineering subfields were able to accomplish in growth or increase in number as well as in getting accustomed. Mechatronics engineering's main purpose has been to be able to produce a design sol which has the ability to combine all the numerous subfields as much as possible. Initially, mechatronics engineering or simply mechatronics was an area which was supposed to integrate only mechanics as well as electronics, due to which its name was made by combining the mecha from mechanics with tronics from electronics to get its name mechatronics. However, with the passage of time, the field of mechatronics started becoming more and more complex and its technical systems nonstop changed as well as advanced, the definition of mechatronics was broadened up, in order to comprise more technical areas in it.

What is the Importance of Mechatronics in the General Sense?

Mechatronics is an area which is significantly needed for the advancement and development of future engineering factories. It is also not an engineering area which people needed to know in their workplaces in the past. However, in the recent decades more and more devices are getting connected with the internet and there has been increased cooperation between mechanical engineering, electrical engineering, electronics engineering as well as computer science engineering to create new products, which are highly advanced and versatile than the existing products in the past. Thus, this trend has been spreading as the time passes and with the arrival of new such products, the working efficiency of people has reached considerable improvement. Due to this the earlier isolated fields and subfields of engineering are now becoming more and more interconnected. This further requires mechatronics engineers who can work as a specialist wherever necessary and needs to handle complex situations in this field. It is further improving the lives of general people with the arrival of interconnected devices and providing them comfort.

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