

Why Componentology is Essential for Software Engineering?

It is impossible to address any complex unsolved technological problem without acquiring and using necessary theoretical foundations, and objective insights. It is impossible to invent real CBE (Component-based Engineering) for software that can address the infamous software crisis without creating and using Componentology. Likewise, it is impossible to address AGI without creating and using Neuronology.org.

How could the pharmaceutical industry invent drugs if there were no chemistry? Chemistry is essential for the pharmaceutical industry, as it is vital to make or inventing drugs. Similarly, Componentology is essential for inventing the tools, and technologies for creating real software components and inventing mechanisms to use the components to construct each large software product as a real CBP (Component-Based Product).

Componentology is invaluable for addressing the infamous chronic diseases of software, such as software crises and notorious spaghetti code, just as various branches of biology are invaluable for treating various diseases or infections. There are several branches of biology that are essential for treating various diseases or infections, including:

1. Microbiology: The study of microorganisms such as bacteria, viruses, fungi, and parasites is essential for understanding how they cause infections and how to develop treatments such as antibiotics, antivirals, and vaccines.
2. Epidemiology: The study of the distribution and determinants of diseases in populations is essential for understanding how diseases spread and how to develop strategies for preventing and treating them.

3. Immunology: The study of the immune system is essential for developing treatments that can help the body fight infections and diseases. Immunologists study how the body responds to infections and how it can be strengthened to fight them more effectively.
4. Pharmacology: The study of drugs and their effects on the body is essential for developing new treatments for diseases and infections. Pharmacologists study how drugs work and how they can be used to treat various conditions.
5. Genetics: The study of genes and heredity is essential for understanding how diseases and infections are passed down through generations and how to develop treatments that target specific genetic mutations.
6. Biochemistry: The study of chemical processes within living organisms is essential for developing treatments that target specific pathways or molecules involved in disease or infection.
7. Anatomy & Physiology: The study of the structure and function of the body is essential for understanding how diseases and infections affect different organs and systems and how to develop treatments that target specific areas.
8. Biotechnology: The application of biological knowledge and techniques to develop new products and technologies is essential for developing new treatments and diagnostic tools for diseases and infections.

Each of the above fields provides invaluable theoretical or scientific foundations for medical research & treatments. Similarly, [Componentology](#) and [Neuronology](#) provide invaluable theoretical or scientific foundations for software engineering & research.

Cartoon to Illustrate the Current State of Software Components



Above: Computer scientists unanimously agreed on the supremacy and vital need for Components & Component-based Engineering for the past 50 years.

Below: Computer scientists have been still wrestling to agree on the right descriptions & definitions for Components & Component-based Engineering.



Only Componentology can help computer scientists seek out, test, and validate in order to [scientifically establish](#) and agree on correct descriptions and theories objectively.