NAME : ISMAIL MOHAMMED

MARTIC NO : 15/ENG05/011

MECHATRONICS ENGINEERING

1. Software has been an important component of control systems for many years. Control system software continues to grow in importance. For example, a faster processor in a control unit may allow a product to perform better and reduce costs by using simpler, lower cost mechanical parts, but only if the sensor and actuator control software are good enough. Software intensive, networked electronics are becoming increasingly central to the performance of products of all kinds, from industrial to consumer. More engineering teams are facing questions about the best way to handle software development as a key part of product development projects. [This includes mechatronics-based design, those integrating mechanical and electronics, including embedded software.]

Software development engineers, methods, and tools can be integrated into product development teams. Examples include industries and product types such as medical devices, radar subsystems, transportation equipment, production monitoring, aerospace, and communications. Approaches used by some of these companies can aid software development in new product introduction projects.

2. Software engineering; is a detailed study of engineering to the design, development and maintenance of software. Software engineering was introduced to address the issues of low-quality software projects. Problems arise when a software generally exceeds timelines, budgets, and reduced levels of quality. It ensures that the application is built consistently, correctly, on time and on budget and within requirements. The demand of software engineering also emerged to cater to the immense rate of change in user requirements and environment on which application is supposed to be working.

A software product is judged by how easily it can be used by the end-user and the features it offers to the user.

Computer science, the study of computers and computing, including their theoretical and algorithmic foundations, hardware and software, and their uses for processing information. The discipline of computer science includes the study of algorithms and data structures, computer and network design, modelling data and information processes, and artificial intelligence. Computer science draws some of its foundations from mathematics and engineering and therefore incorporates techniques from areas such as queueing theory, probability and statistics, and electronic circuit design. Computer science also makes heavy use of hypothesis testing and experimentation during the conceptualization, design, measurement, and refinement of new algorithms, information structures, and computer architectures.

Computer Engineering is defined as the discipline that embodies the science and technology of design, construction, implementation, and maintenance of software and hardware components of modern computing systems and computer-controlled equipment. Computer engineering has traditionally been viewed as a combination of both computer science (CS) and electrical engineering (EE). It has evolved over the past three decades as a separate, although intimately related, discipline. Computer engineering is solidly grounded in the theories and principles of computing, mathematics, science, and engineering and it applies these theories and principles to solve technical problems through the design of computing hardware, software, networks, and processes