What is a Clinical Engineer?  
American College of Clinical Engineering  
http://www.accenet.org/

**Definition**  
A Clinical Engineer is: A professional who supports and advances patient care by applying engineering and management skills to healthcare technology. (ACCE definition--1992)

As clinical medicine has become increasingly dependent on wider use of highly sophisticated technology, and the ever more complex equipment associated with it, the clinical engineer's role in the health care system has continuously evolved as well. Serving initially as the healthcare provider's equipment manager, today's clinical engineer has become the technology officer and strategist helping health providers and industry alike plan for the manufacture or acquisition of technology, then ensuring its safe continued efficient utilization through a well-planned program of user training, maintenance and quality assurance.

A clinical engineer's education provides a well grounded understanding of the physical sciences necessary to apply those principles to the design and construction of instruments and devices for the improvement of health care. and by virtue of additional education, training and experience in the life sciences and management, he or she is especially qualified for a variety of indispensable roles in the realm of health care, industry and academia.

**A Technology Advisor and Cost-Effective Equipment Manager**  
The desire to contain health care delivery costs has thrust the clinical engineer into the role of technology advisor. In industry this means seeking ways to produce and deploy the most cost-effective technology while assuring compliance with government, manufacturing, safety and health requirements. In health care facilities this means assuring the acquisition of the most cost-effective technology (from sophisticated imaging equipment to tongue depressors), which makes optimal use of available resources, Academic programs, which provide a variety of clinical engineering education and training, must be continuously revised to reflect advancing technologies, changing government regulations and new health care management strategies.

Clinical engineers also employ their management skills and technical expertise to determine the optimal lifespan of a health care organization's technology. In this manner, aging, outmoded or inappropriate costly instrumentation is retired in accordance with a rational equipment replacement policy. Integral with this plan is the clinical engineer's role in advising whether to shift to newer, more innovative technology or to stay with the "tried and true." Clinical engineers assist clinicians, administrators, and other health care professionals with the development of lists of equipment for evaluation and then help develop test comparison protocols to determine the best and most cost-effective performers.

**A Watchdog of Safety and Performance**  
All patient care equipment received by health care organizations with an effective in-house Clinical Engineering Department or a clinical engineering service provider, undergoes rigorous safety and performance testing prior to initial clinical use or evaluation and after each repair. This principle is strictly enforced for all devices--whether for prepurchase evaluation, permanent acquisition, lease or rental. Equipment placed into permanent service is entered into the hospital's equipment maintenance/management program administered by the Clinical Engineering Department. Vital performance data are thus acquired that will be used at a later date for a variety of management purposes ranging form replacement decisions to the need for operator or maintainer training. With the growth of professional clinical engineering organizations, such as the ACCE, these data are now being shared in journals and at annual meetings, providing benchmarks which can be used for comparison and the improvement of clinical engineering programs.

and Job Responsibilities.doc
A Technical Educator and Trainer
Medical device users are required to receive periodic in-service operator training in addition to their initial training on newly acquired or unfamiliar equipment. Clinical engineers, whether from in-house departments, outside service providers or industry, are the readily available and appropriate resource to provide such training. Clinical engineers also educate various health care providers on operating principles and potential risks associated with the use of medical technology.

Other clinical engineers and members of their staff receive factory schooling on the operation and maintenance of the exceedingly complex "high-tech" systems so often employed in modern patient care facilities. They become the knowledge reservoirs for future maintenance and operator training on this very specialized equipment.

The Equipment Maintenance Manager
Today's clinical engineers have a plethora of choices to help decide how best to maintain the institution's equipment: perform the maintenance in-house, utilize an outside service vendor or the manufacturer's service, do it on a contract or on an as-needed basis or purchase maintenance insurance. Often the clinical engineer will decide on a blend of service responsibilities as an approach to the most cost-effective strategy.

The service mix upon which he or she decides will be based on a strategy derived from knowledge, experience, existing service data and other economic considerations. Other factors--information from colleagues, practitioners, consultants and available local resources--may play significant parts as well.

ACCE Code of Ethics
As a member of the American College of Clinical Engineering, I subscribe to the established Code of Ethics, in that I will:

Strive to prevent a person from being placed at risk of injury due to dangerous or defective devices or procedures.
Accurately represent my level of responsibility, authority, experience, knowledge and education.
Reveal any conflicts of interest that may affect information provided or received.
Protect the confidentiality of information from any source.
Work toward improving the delivery of health care to all who need it.
Work toward the containment of costs by the better utilization of technology.
Promote the profession of clinical engineering.