A **fail-soft system** is a system designed to shut down any nonessential components in the event of a failure, but keep the system and programs running on the computer.

A **fail-safe system** is a system designed to go into a safe mode if and when the system happens to fail. For example: When the system determines that there is a fault in the sensor for detecting if someone has entered the working envelope or work area, the robot arm is stopped forcibly.

A highly reliable system that can continue to operate even when some part of the system fails is  
called a **fault-tolerant system**. Common technologies for configurations of highly reliable  
systems include **fail-soft**, the function enabling the system to continue its operation, perhaps with  
lower performance or fewer functions, when a failure occurs, and **fail-safe**, the function enabling  
the system to operate safely by avoiding risky conditions when a failure occurs.

**Fail-soft**  
This refers to the function in which, when a failure occurs, the failed part gets cut off and the  
system continues to operate, perhaps with a lower performance level (fall back). In a duplex  
system, normally the two systems are independently processing data, but if one system should fail,  
the configuration would switch the processing to the other system and would carry on the  
processing. In addition, when a failure occurs in multiprocessors, the system continues its services  
by cutting off the failed processor. This too is a system configuration with fail-soft in mind.

**Fail-safe**  
This refers to the function in which, when a failure occurs, the system locks its functions in a safe  
mode established in advance to control the extent of the impact of the failure.115 This is just like  
the measure where all railroad lights turn red when an accident has occurred. In system  
configurations where two systems compare the processing results of each other, such as in a dual  
system, when the compared results are different, the system in which a failure is determined to  
have occurred is cut off while the operation continues on.