A project is a task of finite duration with a well defined beginning and end. Projects have a well defined deliverable as end result, whether this deliverable is a product such as a bridge or production plant, or a document such as a report. Routine business tasks such as mass production or day to day running of business does not qualify as a project.

Project management is the discipline of managing a project. It starts with a project charter being issued by the customer that requires the project to be competed. It is followed by the planning phases that involve work definition, time planning, budgeting, and resource management planning. Then it moves on to the implementation of the project and finally the closing of the project. Some aspects of project management need to be considered throughout the project management process namely risk management and quality management. Many standards have been defined for project management, two well known and widely adopter ones being the Project Management Body of Knowledge (PMBOK), and PRojects IN Controlled Environments 2 (PRINCE2).

An important aspect of project management is the project lifecycle and the different phases thereof. Projects are often phased since planning becomes difficult when it depends on events that have to occur first. A rough plan of a project as a whole is usually done, but only the phase that is to take place next is planned in detail.

At the initialisation of a project a charter is draw op to identify what the project entail, and who will be involved in it. This is referred to as the scope of the project and the stakeholders or role-players respectively. Role-players are those who would be directly involved in the project while stakeholders are anybody else who is in some way affected by the project. The process of scope management involves defining the requirements of the project and an acceptable outcome and the procedure if changes are to be made to the scope. The change procedure ensures that all role-players are working towards the same goal. The scope also includes a statement of work defining the tasks to be completed. Other elements such as lists of obstacles to overcome or objectives to be reached are often included in the charter.

The next part of project management is to create a work breakdown structure (WBS). The purpose of the work breakdown structure is to identify all the individual task that are necessary to complete a specific project. These tasks or deliverables are further grouped into related tasks known as a main deliverable. The task can also be further broken down into work packages. The work breakdown structure is usually represented in a tree structure and the elements of it are appropriately numbered or coded. The WBS is often accompanied by a definition of responsibilities of those involved either in the form of a responsibility assignment matrix or an organizational breakdown structure.

Using the work breakdown structure, time planning and budgeting of the project is done while keeping in mind the aspect of quality and risk management that will influence these.

Scheduling is necessary to determine when certain resources would be required and to establish the duration of the project. The process involves crating network diagrams relating the elements of the WBS in terms of precedence, succesion and duration. The then lead to detailed Gantt charts that take into account working and non-working days to set exact dates. During scheduling the critical path of the project is also identified. The critical path includes work packages that would delay the entire project. An alternative approach is the critical chain approach that takes into count limited resources and work load levelling when determining the critical work packages and makes provision for contingency wait periods.

Project cost management ensures that the project is economically viable. A budget for the project is achieved by using experienced estimates of the costs of task in the WBS. Measures are also put in place to ensure that the budgets are held to as closely as possible. Elements such as cash flow and tradeoffs with scheduling are also considered.

The elements of quality management and risk management are interwoven with all phases of the project from planning, through implementation until closing.

Quality management not only entails after the matter assessment of the deliverables but also the planning and controlling of processes to ensure that the requirements set down in the charter are sufficiently met. The most important aspects of quality management is determining whether the deliverables satisfy the needs of the customers, weather they are fit for purpose and meet the specifications. The ISO 9000 series of standards deal with the aspects of quality.

All projects entail elements of risk that could lead to the failure of the project. These risks sprout from uncertainties inherent in the nature of projects. There are also uncertainties that could influence the outcome of a project positively. Risk is asses both in qualitive terms in the form of risk matrices or other methods, and in quantitive terms. Quantitive assessment of risk involves calculated probabilities of an adverse event taking place and the estimated effective loss that would be suffered. Risks are usually ranked is high or low priority with the aid of graphing and other techniques. Lastly plans are formulated to reduce the impact of a risk should they occur. This can be done by setting in place contingency plans, avoiding the risk, transferring it by means agreements or insurance policies, or by implementing some form of redundancy at additional cost.

Knowledge of the field of engineering economics is useful to a project manager. It asses the time value of money, interest rates, taxation, and cash flows as well as a number of techniques for choosing between alternatives in terms of financial parameters such as net worth(NW), internal rate of return(IRR), future worth(FW) and minimum acceptable rate of return(MARR).