**HANDOUT #1**

**RES421 Introduction to Research and FS W/F 11:30-1:00 (CE)**

**Engr. Reynaldo P Ramos, PhD Mon 1:00-2:00 (EE)**

1. **Introduction**

**RESEARCH:** Composed of two words – “re” and “search” which means to search again or to search for new facts or to modify older one in any branch of knowledge. Research means search for knowledge through objective and systematic method of finding solution to a problem

* It is a scientific and systematic search for pertinent information on a specific topic
* It is an art of scientific investigation
* It is a careful investigation for inquiry especially through search for new facts
* It is a critical enquiry or examination in seeking facts or principles: diligent investigation
* It is a systematized effort to gain new knowledge
* It is a systematic and refined technique of thinking
* It is an honest, exhaustive/comprehensive, intelligent searching for facts, their meanings or implications with reference to given problem.
* It constitutes a method for the discovery of truth which is a method of critical thinking
* It is a continuous discovery and exploration of the unknown
* It is a movement – movement from the known to unknown. A voyage of discovery
* It is a systematic method consisting of enunciating/articulating the problem, formulating a hypothesis, collecting the facts or data, analyzing the facts and researching certain conclusions either in the form of solutions towards the concerned problem or in certain generalization for some theoretical formulation
* It comprises of defining and redefining problems, formulating hypothesis or suggested solutions; collecting, organizing and evaluating data; making deductions and reaching conclusions; and at last carefully testing the conclusions to determine whether they fit the formulating hypothesis

**KNOWLEDGE:** It is a prime source of beauty, sociability, practicability, work and reason, discussion and speculations. It is one aspect or other exists in a person in an unusual manner which is transferred from generation to another generation. Knowledge can be derived or sourced from: formal (experience, nature), informal (logic, efforts, intuition), unformal (mistakes common sense), and educational (practical).

**INQUIRY/ENQUIRY:** It is an approach to learning that involves a process of exploring the natural or material world that leads to asking questions and making discoveries in the search for new understandings. It is a process that has the aim of augmenting knowledge, resolving doubt or solving a problem. The nature or inquiry:

* It is in the form of problem, question, an obstacle, discussion, interview or encounter, hypothesis, verifiable, checklist and divergent (different/opposing) thinking

**SCIENTIFIC THINKING:** It is an inductive-deductive mode of thinking or reasoning. It is based on empirical evidences and establishes cause and effect relationship. Thus, a research is an example of scientific thinking

**THEORY:** It indicates towards the value of artificial and innovative usability. It is an attempt to develop a general explanation for some phenomenon. It is concerned with explanation and therefore focuses on determining cause-effect relationship. It is also clarifies the relationship between evidences and at the same time it gives meaning to the existed relationship and thus presents it in an appropriate form.