

Course: Project Management and Research Methodologies

Term Project: Perform a literature review and develop a research proposal

Issued: Saturday, 22/12/2020

Due: Friday, 8/2/2021

Objective

The objective of the project is to:

- a) perform a limited (i.e. NOT systematic or comprehensive) review of current state of the art in a given domain of your choice.
- b) The objective of this initial review of the literature should be to assist you in identifying one or more RESEARCH QUESTIONS (i.e. interesting problems that have not been adequately researched) that are worth researching.
- c) You should subsequently select one of those research questions and should develop a research proposal.

NOTE: You should not perform the research. Rather you should describe how you will structure the work and justify the selection of appropriate methods.

In this assignment you are asked to **work individually**. In specific circumstances you will be allowed to work in groups of two, **but you need permission of the course instructor for this.**

Topic

The topics proposed should be related to challenging technological and/or scientific areas related to Industry 4.0 or other Informatics or ICT related area.

You are free to select your own topic of interest. They will be discussed in the class at the earliest availability.

Once you have selected your BROAD AREA of interest, you need to:

1. Identify at least 8 -10 recent scientific papers – published preferably during the last 5 years - using WWW or library facilities. Finding appropriate articles is important and may contribute to a higher mark.
2. Use this set of published results in order to produce a concise review of current state-of-the-art in the specific domain and to identify issues, areas or questions that demand additional Research and or Development.
3. **Produce a Report :** Deliver a short 5-6 pages report that reports on the challenges in the selected topic and concludes with the list of open issues/questions that demand further exploration/study.

This initial report should contain the following:

- *problem formulation*: describe the main concepts in your topic;
- Identification of “themes”, i.e. main issues presented and discussed;
- *Summary of open issues*. The ability to identify “open issues” and “future directions for exploration” will be a strong plus for your work;
- List of articles that you have used in preparing your report. In doing so you are required to select the **IEEE style of references** and use it for all your references.

4. **Select a question/challenge and develop a research proposal.** Once you conclude this initial phase, you are asked to a) select a (research) question or an (engineering) challenge that you believe is worth exploring and b) develop a research proposal.

Structure and content of the Research Proposal

The contents of a Good Research Proposal (which should be delivered at the end of the term) are:

- **A title** that is appealing and meaningful, reflecting the contents of the research proposal. Your title should give a clear indication of your proposed research approach or key question.
- **An Abstract** that should be motivating to the reader.
- A small number of Chapters/Sections
 - **Section 1 – Introduction**: the problem should be convincingly described.
 - **Section 2 – Literature Review**: should show mastery of the literature on the topic of interest in the research proposal. Literature used should be relevant to the problem statement and research questions
 - **Section 3 – Methodology Section**: is the third section and should consist of the research strategy, research setting and (if applicable) the study population, sampling methods, measurement of key variables, data collection methods, data processing and analysis and techniques to be used to ensure validity and reliability of results.
 - **Section 4 – Plan of Work and Time Schedule**
 - **References**

This will be discussed in class in more detail.