Project Planning

Module 1
Project Selection

PREPARED BY

Academic Services

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Module Objectives

Upon successful completion of this module, students will be able to:

- Define a project.

- State the six different stages involved in project work.

- Select three projects from the list of choices given, and conduct research on each one of them.

- Prepare a Literature Review Report on the three projects.

- Describe the proposed project, and provide justification for your choice.

Module Contents:

1.1 Introduction to the Stages of Project Work

1.1.1 What is a project?

A project is a set of tasks connected together in order to provide a solution to a problem. The tasks usually have to be completed in a logical order, within specific time and budget, and according to preset specifications.

1.1.2 Project Stages

Prior to choosing and designing the project, it is important to invest some time and effort in identifying the given problems or challenges. Investigation, planning, testing and so on, will then follow the project selection. There are different methods in which project work could be carried out based on the situation. Generally, project work would involve the following stages:
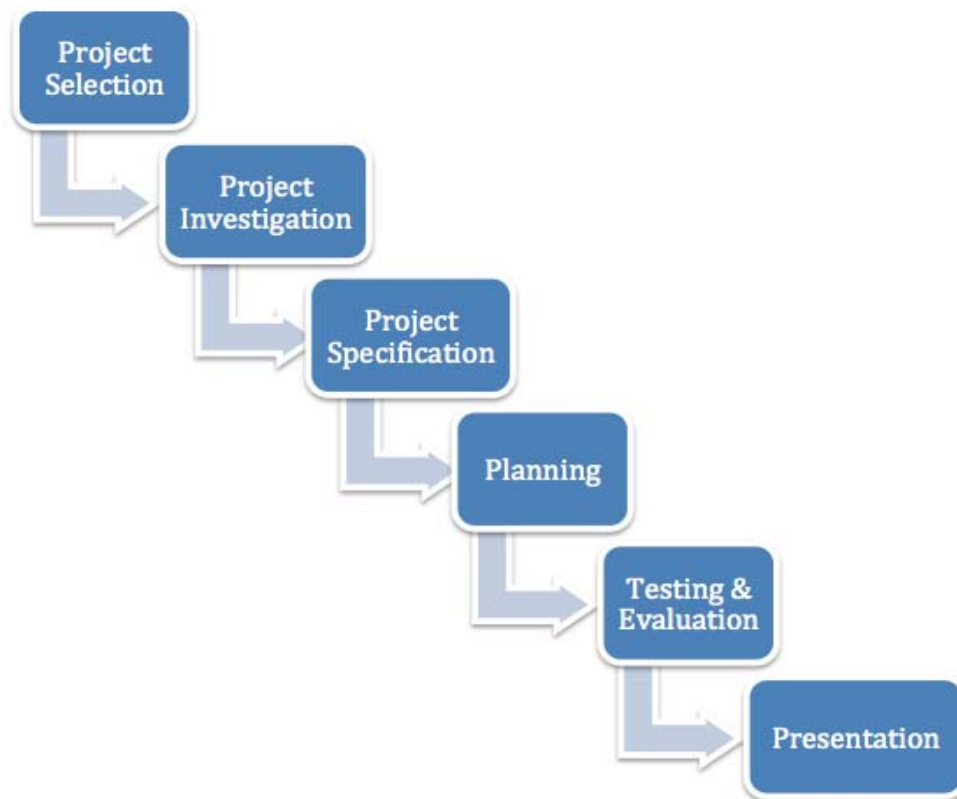
Figure 1.1: Stages of project work

This module will provide an in-depth understanding of the different stages of project work. The knowledge gained through this experience will help you design and build a project prototype of your choice in term-2.

1. Project Selection

Selecting a suitable project requires identifying thegivenproblems by visiting local situations, arranging visits and making contacts with people to know, gathering more information, and identifying project outcomes and related expenses.

2. Project Investigation

Begin with the end in mind. Collect information about the project by identifying different sources of information that would be helpful for your research. The research methods listed in figure 1.2 could be used in the investigation process, to come up with answers for the following questions: What kind of people will use it? Where and when will they use it? What features will be useful for them? What are the existing product features? How are other users using it? What are the existing resources that could be used? How much will it cost?
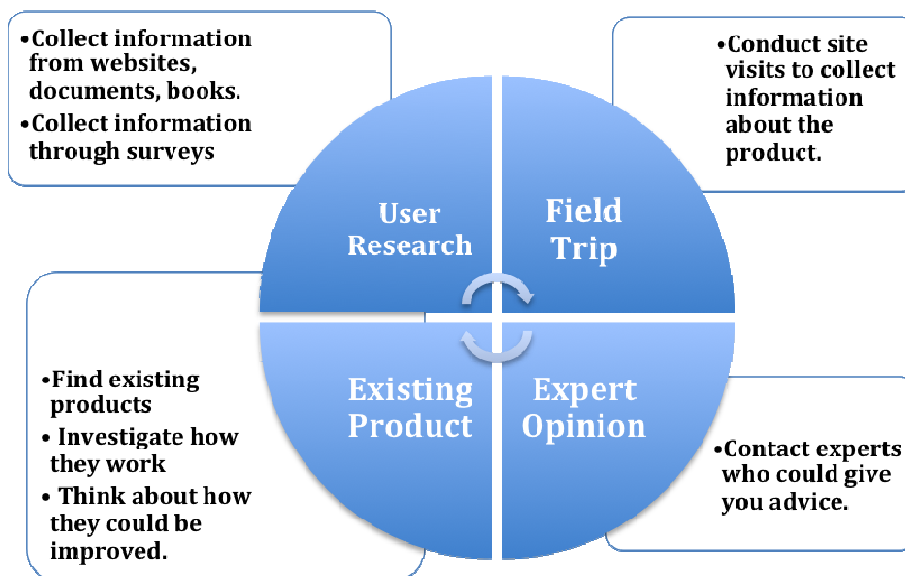

Figure 1.2: Research Methods

3. Design Specification

This part defines the specifications of the design that are fixed or could be changed. The findings from your research should form the basis of your design specification. The specification checklist given below could be used for general guidance. However, more items could be added based on the project requirements.

Use and Performance

Indicate the main purpose of the project and its function

Size, Weight and Appearance

Include the size and weight as they affect the cost, components used and the space required. Include the color if applicable.

Parts

Include the parts of the project.

Safety

What are the safety aspects that apply to your design?
What are the foreseen hazards?
What warning labels or instructions are needed?

Figure1.3: Specifications Checklist

4. Planning and Construction

1. Analysis

    a. What is the project challenge?

    b. Will the system control a sequence of operations? What are they?

    c. Is it a closed loop system?

    d. What inputs are required?

    e. What outputs are required?

    f. What type of control does the system need?

    g. Are there any other special considerations?

2. Sketching

    Record your ideas and thoughts. It could be in the form of notes and drawings. The sketches must be clear and must be freehand. Use color and shades and include notes in your sketch to explain your ideas.

3. System Diagram

    Draw system diagrams to show the sub-systems (input, process and output units) in your design.

4. Circuit Diagram

    Draw the circuit diagram of the system including all the component specifications.

5. Orthographic drawing:

   Use AutoCAD or any other software to come up with a clear drawing of the intended prototype. Mark the exact dimensions and include all details of the design and materials.

6. Production Flowchart:

   Develop a production flowchart including the following:

   a. List the order in which the main parts will be assembled such as procuring materials, marking out, cutting, soldering and so on.
   b. Indicate the time required to complete each task.

   A Gantt chart could be used to prepare the production flowchart/schedule to display the project tasks in a sequence and timeline.

5. Testing and Evaluation

The final evaluation phase includes two major aspects:

a. Assessing the quality of your project with reference to the design specifications set initially.
b. The process used while it was designed.

6. Presentation

The presentation stage requires preparing a project report and an appealing keynote/PowerPoint/video presentation. The way you present is important.

1.2 General Guidelines

Students will be divided into groups of four, and each group would be assigned a facilitator who would coordinate the project work. Each group is required to fill in the Graduation Project form given in Appendix-A, and also complete a Literature Review Report at the end of this module. Also every group needs to maintain a Graduation Project Portfolio that includes all activities through the three terms. All group members will be assigned the following different roles:

a. **Facilitator:** Responsible for getting the group started, keeping it on task, and involving all members.

b. **Recorder and Reporter:** Responsible for keeping a record of what happens in the group meeting, and summarizes group decisions for the larger class. Reports problems, if any to the instructor. Also, organizes the GP portfolio, reports and presentations.

c. **Time keeper & Spy:** Responsible for keeping the group on task and on time and collects information from other groups when appropriate. Also prepares the project schedule and ensures that the group sticks to the schedule.

d. **Technical Expert:** Follows the technical details of the project. Helps the group prepare circuit diagrams by interpreting block diagrams and arranges for procurement of parts. Assists the group in understanding the technical details.

1.3   Project Selection & Investigation

Students will be given a list of projects by their instructor. Initially, they would need to select three interesting topics in collaboration with their team members. The research methods listed in figure 1.2 could be used to collect information about the three projects selected, by identifying different sources of information.

Activity 1-User research:

Collect information from websites, books and through surveys.

- List three websites that provide information on the selected products.
- Visit the library to locate a reference or a magazine related to the project. For example, the pump is one of the main parts of the espresso machine; a reference book like *"Centrifugal and Rotary Pumps: Fundamentals with Applications by Lev Nelik"* could be useful.
- Conduct an online survey to collect information.

Activity 2-Field Trip:

Conduct site visits to collect information about the product. For example, a field trip to the Black & Decker – Dewalt factory in Jabel Ali, Dubai would be a good choice to collect information on the manufacturing process of the espresso machine.

Activity 3-Existing Product:

Visit the local market to find existing products. Investigate their shape and design, how they work, and think about how they could be improved. Draw sketches to record the available designs.

Compile the information collected through activities 1 to 3to come up with answers to the following questions:

1. What kind of people will use it?

   _____

   _____

2. Where and when will they use it?

   _____

   _____

3. What features will be useful for them?

   _____

   _____

4. What are the existing product features?

   _____

5. How are other users using it?

   _____

   _____

6. What are the existing resources that could be used?

   _____

   _____

7. How much will it cost?

   _____

Activity 4- Expert Opinion:

Contact two experts who could give you advice on selecting one project.

Activity 5- Proposed Project:

Describe atleast two projects that you propose.

Project 1: Describe it.

       Advantages- describe them.

       Disadvantages- describe them.

Project 2: Describe it.

       Advantages- describe them.

       Disadvantages- describe them.

Chosen project: Justify the choice of solution from the others considered.
I have chosen project X because ……..

1.4 Literature Review Report Guidelines

Based on the information collected through research, each group is required to write a **Literature ReviewReport** on the three projects they have selected.

The report should identify the following:-

1. Internet websites.

2. Appropriate references that could be utilized.

3. Survey questions and responses.

4. Company visited.

5. Sketches of designs and shapes available for the product.

6. Answers to all seven questions listed under activity-4.

7. Names of experts who were contacted.

8. Project selection and justification.

1.5   Appendix A: Graduation Project Form

Project title:……………………………………………………………………………………

Student Names:

          1.……………………………………………………………………………

          2. …………………………………………………………………………

          3. ……………………………………………………………………………

          4. ……………………………………………………………………………

IAT Campus: …………………………………………………………………………

Section: …………………………………………………………………………………

Teacher: …………………………………………………………………………………

1.6 Appendix B: Literature Review Report Scoring Guide

A. Assignment Completion: 5 Marks

Component	Score
Report Completion	3
Timely submission	2

B. Report: 45 marks
Content: 40 marks; Language & Organisation: 5 marks

Criteria	Poor	Satisfactory	Good	Excellent
User Research	1	2	3	10
Field Trip	1	2	3	5
Existing Product	1	2	3	10
Expert Opinion	1	3	5	5
Proposed Project & Justification	1	3	5	10

Total Score: 50 marks