

Planning Techniques for Robotics

2025/2026

Research Report

In **Planning Techniques for Robotics Course**, there are many Meta-heuristic optimization algorithms to be learned and discovered, these strategies varies in inspiration, technique, motivation and even objectives. Due to the limited timeline of the semester, not all these topics can be covered. So, your task is simply with your team to make a **Research Report** about a pre-selected topic for your team to do.

Each team should make a **Research Report** about the “Selected Topic” and Implement the following:

- 1- A **cover page** containing the names of the team members and the name of the topic
- 2- A **table of contents** shows the headers and sub-headers of the research report
- 3- A **list of figures** shows the ordering of figures throughout the report.
- 4- **Abstract** about the selected topic **BRIEFLY** and how it is inspired to be developed and introduced. (*Recommendation: 1 Pages*)
- 5- **Chapter (1): Introduction** of the topic and a short details of it and what its objective and what is the problem-domain that the topics can solve and the dimensions. (*Recommendation: 2 Pages*)
- 6- **Chapter (2): Literature Review** shows some applications of other researchers using the same selected topic on applied projects/experiments or any other related topics. (*Recommendation: 4 Pages*)
- 7- **Chapter (3): The proposed algorithm** shows all steps, pseudocode, behavior, equations and flowchart of the algorithm and how it is implemented step-by-step in deep detail (**No variations of the same topic is required**). (*Recommendation: 6 Pages*)
- 8- **Chapter (4): A numerical example** of your choice using the same topic within its boundaries showing how it can be used to solve the problem. (*Recommendation: 1-2 Pages*)
- 9- **Chapter (5): Comparison & Conclusion** this chapter can contain a brief comparison of the topic with other topics and how it overcome them in some evaluation metrics. (*Recommendation: 2 Pages*)
- 10- **Chapter (6): References & citations** of all data provided in the report (**better to use IEEE citation style**). (*Recommendation: 1 Page*)
- 11- Used font is “**Times New Roman**” with Font size of **12**, use **BOLD**, *Italic* and underline through your report.

Note ! Plagiarism should not exceed 45% of the report, so make sure to write YOUR OWN REPORT MANUALLY AS MUCH AS POSSIBLE.

An Advantage of Best Teams:

- Provide good details and explanation of the topic in the report.
- Organize the report so it can be readable and good to understand.
- Provide a Full Video to explain the topic given in full detail so everyone can watch and understand the topic.

Deadline: Sunday, 29/03/2026

Remember, this report is for your benefit to get familiar with different optimization algorithms that are not covered in this course.

Good Luck 😊

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