

This document provides materials from initial two project meetings along with requirements and templates for Waterfall and Agile project management paths

Project management requirements

Your project can be managed in two ways which require different documentation to 'get a grade'. Choose which one of these paths will suit your team best for the rest of the semester:

A. Agile path

- You will need to keep scheduled meetings (at least once a week) devoted entirely to discussing what is happening in the project and deciding who does what in the upcoming week. These meetings can be online and do not need to be long, but after each one, every team member should be assigned a task that will be done over the course of the next week. Asana (in a free version) is a software recommended for tracking task progress but you can use any application that allows for assignment of tasks and checking their fulfillment. Team leader is responsible for preparing a short summary with highlights and decisions from each meeting. Such summary should be sent to the course supervisor after every meeting.
- A document consisting of all these summaries should be submitted along with the project.

B. Waterfall path

- You will need to prepare a polished version of project plan done during 2nd project meeting – see template attached below – and send it to course supervisor within a week (by 31.10.2024).
- While the project is under way, you should maintain a document which will track its progress (with accepted milestones or alterations of its path. If you need to make significant adjustments to schedule, prepare an updated version of the plan).
- At the end of semester you will need to show and discuss these documents with the teachers.

WATERFALL project plan template

- 1) Team members (with a person designated to project progress tracking)

- 2) Bullet points summarizing what was already done by you (a starting point for the project)

- 3) A **Gantt** schedule for tasks and assignment of people to these tasks. Consider task relations – which tasks are required by others? Which can be parallelized and which should be serialized?

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Task 1						
Task 2						
Task 3						
Task 4						

- 4) **Milestones with their deadlines** to be met in tasks to ensure project timeliness. It would be good to mark them also in the Gantt above

- 5) **Policy for documentation, control and backups** to ensure stability in case of team member unavailability or hardware failures and to track decisions and adjustments made along the way. How will you ensure that you will detect potential problems early enough to be able to respond to them? How will you communicate project progress to your supervisor (this time: course teachers. Normally: investors/CEO, funding committee, etc.)? Who will be responsible for ensuring that everything goes according to plan?

- 6) **Risk analysis:**
What can go wrong and how will you act in such a situation. Think about real-life and likely causes of issues that are typical for students' projects (*hint: procrastination of particular team members, lack of knowledge in particular tasks, incompatibility of software modules, unpredicted problems in data are examples of things to consider*)

AGILE roleplay game

- 1) Choose a team leader (the person who will lead “project meetings”). The task of this person is to lead the project following the AGILE concept and hopefully ensure the completion of the project. In order to get your project topic roll a d20 die on the following **project assignments table**. Read the topic and make sure that all team members understand what is to be done – but don’t discuss strategy and particular tasks that will be necessary to complete the topic, that will be a team leader’s role!
- 2) Conduct a simulation of three to four project meetings. Each meeting can last a maximum of 8 minutes (use a timer!). Before each project meeting, each person, except the leader, secretly rolls a d20 die, reads the result from the **random outcomes table**, and follows the scenario suggested by a die during the meeting. It would be good to take a short (2-3 minutes) break after each meeting to let the team leader think about further strategy.
3. After the cycle of meetings is completed, collectively consider the following questions:
 - How does it feel to use agile approach for your project topic? Discuss the atmosphere of meetings, tools used by the team leader to keep the team motivated and focused on the job?
 - Had you start the project once again – would you manage it differently?
 - What were the most interesting findings and challenges during the meetings?
 - How did team dynamics evolve over the simulated meetings? Were there any changes in communication, collaboration or decision-making?
 - In retrospect, how would you apply the experiences gained from this simulation to real-life project management situations? Which of your solutions or actions can be directly translated into practical project management strategies?

Project assignments table:

1-2	1. You are a start-up that plans to implement and sell an app for bird-feeding recommendations. You already have basic algorithm ready, but you don’t have anything else.
3-4	2. You are R&D team of a large railway company. You were assigned to design and implement a new system for railway safety monitoring.
5	3. You are a start-up that will sell images and high-quality prints of photographs and AI-generated artwork over the internet. You need an online store app that includes image-processing engine for enhancing and presenting images in an eye-catching way.
6-7	4. You design and sell custom control and measurement systems. You were contacted by a biotechnology company that wants a control system for its advanced biohazard detection and containment equipment. You start a project on that.
8	5. You are a group of scientists that form a crew for scientific project aimed at colonoscopy-based cancer detection. You want to direct research, develop algorithms and finally build a proof-of-concept system to show that your method works.
9-10	6. You are a team in a tech company that specializes in wearable devices. Your task is to design and develop software for a new smartwatch that incorporates health monitoring features such as heart rate tracking, sleep analysis, and stress management.
11-12	7. You are part of a software development team for a cybersecurity company. Your mission is to build a robust and secure online platform for threat intelligence sharing among organizations, ensuring the confidentiality of sensitive information.
13-14	8. You are a software development team working for a major social media company. Your project is to enhance the platform's content recommendation system, using machine learning to improve user engagement and content discovery.
15	9. You are part of an IT support team for a large e-commerce company. Your mission is to design and implement an automated customer support chatbot that can handle common user inquiries and provide timely assistance.
16-17	10. You are a data analytics team working for a healthcare provider. Your project is to analyze patient data and develop predictive models to improve patient care, optimize resource allocation, and reduce healthcare costs.
18	11. You are a team of software engineers responsible for building a mobile app for a food delivery startup. Your goal is to create a user-friendly app that integrates with various restaurant partners and optimizes the ordering and delivery process.
19-20	12. You are a team of data scientists working in the field of natural language processing (NLP). Your task is to develop a sentiment analysis tool that can analyze and categorize customer feedback and social media posts for a product manufacturer.

Team leader task:

You are a team-leader. Your goal is to organize a series of project meetings with your team that will simulate project management process using agile approach. You are responsible for assigning team roles (e.g. backend or frontend developers, marketers, researchers, hardware or sensor engineers, etc.) and delegate particular tasks to people that are supposed to be done within next 2 weeks.

The assumption is that 2 weeks pass between each meeting. In this time your team is doing tasks that you assigned them – and will meet obstacles and problems along the way – with which you will have to deal during the next meeting (by modification of work assignments, deadlines, etc.).

Listen to your team members. Sometimes they will report to you necessity of changing the scope of project or include changes in tasks already done. Better assume that they know what they are talking about (unless you have a good reason not to).

Sometimes you will need to unpack the actual reason behind problems, your team members will sometimes not want to report the actual root cause of problems straightforwardly. They are your team, however, they are not your enemies or slaves. Remember to keep a nice atmosphere, positive motivation and assertive attitude in case of problems.

Team member task (repeated for every team meeting except the first one):

On the previous meeting you were assigned a task to do. You are a reasonably well trained specialist so under normal circumstances you should be able to do any task the team leader assigned to you (even if in real life you can't do that yet). However, roll a d20 die on the following random outcomes table to see how well did this assignment go this time. During the meeting try to roleplay what happened – don't just report that in a plain text. Imagine you are in an actual project and let the team leader manage what happened. Your job is not to 'win' against the team leader but to create a plausible scenarios for development of team communication and team management skills.

Random outcomes table:

Die result	Outcome
20	The task was much easier than it initially seemed. You finished it quickly and then did some work that might be related to yours or another person's task in the future (you can 'give' it to someone assigned a difficult task or facilitate your next assignment)
15-19	Nothing out of the ordinary happens- Your task was completed as planned.
13-14	You completed the task without a problem, but when planning the next sprint, it turns out that the task assigned to you will require changes to work done by someone else in a previous cycle. You must either convince the leader to change the direction of the work or have someone from the team redo one of the previous tasks.
11-12	You completed the task without a problem, but due to company cutbacks or necessity of additional income, you've been assigned additional responsibilities (by a higher manager or by an external employer). Until the end of the project, you'll only be able to devote 30% of your previous commitment to the project.
9-10	You struggled with the task and finished it, but are no longer motivated and feel that doing something else would be better. If you receive another task related to this topic, you'll need much more time (you will at most do half of the assigned task next cycle, even if next time you will get 0-60 die result)
7-8	The task was completed without a problem, but when the leader reveals the content of the next task, you feel that you need more time than the leader's estimate. If the leader agrees, it's okay. If not, in the next cycle, you won't roll the dice but will only do half of the assigned task.
6	You completed the task without issues, but was contacted by the investor/company owner. He notified you that the scope of the project changes (invent a new product or functionality that you need to incorporate into your plan. Make it a major change that completely invalidates at least one task already done and introduces at least one entirely new task)
5	The task proved to be too difficult, and unforeseen problems (technical?) arose right at the beginning. You want to do it and feel you can, but you'll need another sprint to accomplish it. Since you already have an idea on how to solve it, next cycle you will probably be able to help someone else in his or her task as well.
4	You've caught a severe flu – you've spent the last two weeks in bed and haven't done anything. Fortunately, you feel much better now.
2-3	You lack the skills to complete the task, you did not even started it. If the leader deems the task essential, you'll need training in the next cycle to successfully complete it (during next cycle you take a gap, don't roll a die and do "training"). Only after that you will be able to solve the task (in yet another cycle).
1	From now on, you will be a person with some hidden issues. You will agree to all of the leader's suggestions, but you will never do any more work in the project – you will always find excuses to do so (you were ill, you had technical difficulties, anything that sounds reasonable). You will still roll die every cycle but you will ignore these rolls' results for the rest of the exercise.