# Course Title: C.2.1. Project Management­­­­­­­ (long version)

# Abstract:

This is the first course of the second module on project management and entrepreneurial skills and aims to lay the foundations for project management. This course focuses on the basics of project management and on core project management tools. After a brief introduction to the topic of project management, students tackle the issues of building a project team, team roles, team leadership, and team management. By developing their own projects, students become familiar with criteria for selecting projects, defining a project objective, as well as the basics of project planning. Using their own project examples, student teams engage in the topics of stakeholder management, project scheduling, budget planning, risk management, monitoring, and closing a project. Students train their creative and technical skills by developing a video prototype of their project and learn how to pitch their project. This course follows a blended learning approach in order to encourage students’ self-learning (marked in orange) and involves interactive elements in each session (marked in blue). E-learning suggestions re marked in green.

# Learning Objectives:

* Learning Objective 1: Students are able to apply project management tools by planning a regular-sized project
* Learning Objective 2: Students are able to critically reflect on different project management tools and choose the appropriate tools for their project planning
* Learning Objective 3: Students train and critically reflect on different communication approaches within their team and when approaching stakeholders
* Learning Objective 4: Students train their conceptual, writing, and presentation skills by writing a project plan and pitching their project

# Assessment Method:

* Project Plan: to be handed in at the end of the course (including: project Objective, 6 tools, team reflection)
* Project Pitch: in the last session of the course

# Explanation to Session Plan:

* Interactive exercises are marked in blue.
* Some sessions provide additional readings that you can use either to educate yourself and to include some of the research findings in your class, or, let the students read them as additional homework (depending on the course level and your workload requirements).
* This is the long version for a course with a 90 min session per week for a semester of 14 weeks, but 5 ECTS workload.

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| Session # | Session Content | Method(s) | | Learning Objectives of Session | | | Material | Time (mins.) | Comments | | |
| 1 | **Introduction** | | | | | | | **90** | Should be done in a class session | | |
| Preface: Introduction to the course | Introduction of the lecturer | | Getting started/ warm-up + demonstrate Moderation tool for PM workshops | | | PPT presentation (Slide 3) | 5 |  | | |
| Introduction of the students:  Living statistics | |  | | | PPT presentation (Slide 3)  Space in the room | 20 | See sample questions on slide. Helpful to get a quick overview of the class and students’ PM skills | | |
| Purpose and objective of the course, course design, need for self-study time, examinations Slide (needs to be adapted to each HEI) | |  | | | PPT presentation (Slides 4-8) | 10 |  | | |
| Survey of expectations:  Ask students to write their expectations on cards and cluster them on the board. Explain which you can fulfil and which you cannot fulfil.  Also, reflect on the method and why clarifying expectations is necessary in project management. | | Clarify expectations + demonstrate Moderation tool for PM Workshops | | | PPT presentation (Slide 9)  Moderation Cards + Pens  + Board | 10 |  | | |
| Introduction to PM | What is PM?  Let students brainstorm and gather on mindmap on board | | Understand what PM is and what not  Be aware of PM life cycle | | | PPT presentation (Slide 11)  Board, pen | 10 |  | | |
| Characteristics of projects | |  | | | Slides 12-15 | 15 |  | | |
| Project life cycle | |  | | | Slides 16-17 | 10 |  | | |
| Summary + mind map on board Review original mindmap and what is PM | |  | | | Slides 18-21  Board + Pen | 5 |  | | |
| 2 | **Project Team and Project Leadership Management** | | | | | | | **90** | **3 hrs self-study** | | |
| Leadership introduction (What are roles and responsibilities of a project manager?) | Short video to catch attention  Let students brainstorm and gather on mindmap on board | | Warm up | | | PPT Presentation (Slide 4) Board, pen | 5 |  | | |
| 2.1 Project Leadership | Roles, responsibilities, characteristics of project managers/leaders (slides 5+6)  Project management as leader-intensive task (slides 7-13; + Video on slide 10 | | Understand the responsibilities of a project manager  Be aware of the necessary skills | | | Slides + Video (sound needed) | 20 | Additional Reading: Gehring, D. R. (2007). Applying traits theory of leadership to project management. *Project Management Quarterly*, *38*(1), 44.  *Müller, R., & Turner, R. (2010). Leadership competency profiles of successful project managers. International Journal of Project Management, 28(5), 437-448.*  *(3 hrs workload)* | | |
| 2.2 Project Management Professionalism | Information on certifications and training on how to become a PM professional (slides 14 – 24)  Including a short interactive brainstorm “why projects go wrong”? (Slide 16) | | Be aware of career options and training possibilities | | | Slides | 30 |  | | |
| **2.3 Team Management** |  | | | | | | | | | |
| Roles and responsibilities of team members | Lost in desert game (s. instructions)  Group work | | Students reflect on different team roles and the sets of skills and responsibilities attached to these roles  Students reflect the role and responsibilities of the project manager | | | Instructions lost in desert game on work sheet  +  Room that allows group work | 45 |  | | |
| 3 | **2.3. Team Management (Part 2)** | | | | | | | **90** | **5 hrs self-study** | | |
| Own team experience | Think-pair-share: Step 1: students think of an example where teamwork failed. Step 2: Students share their story with their neighbour and discuss why the teamwork has failed. Step 3: Make a collection of reasons for failed teamwork on the white board and discuss this with students. | | Warm up/activate previous knowledge | | |  | 15 |  | | |
| Teams | Review of teams and manager’s roles (Video on slide 5)  Characteristics of effective teams (slide 6 + 7)  Team development stages (slide 8) | |  | | | Video (sound) + slides | 20 |  | | |
| Belbin test for assessing team roles, Part I | Self-assessment:  Each student finds a partner. All students fill out the Belbin test for assessing team roles (pp. 1-4) for themselves and for their partner (no group task). At this stage, students only complete the test without entering any scores. | | Students assess themselves/their own behaviour in teams using the Belbin test | | | Belbin test worksheet (pp.1-4)  + slide 9 | 10 |  | | |
| Team roles | Belbin‘s team roles  (Slides 10 + 11) | | Students can explain the functions, strengths, and weaknesses of different team roles | | | Slides (Slides 10 + 11) | 15 |  | | |
| Belbin test for assessing team roles, Part II | Discussion in groups of two students | | Students reflect their own behaviour in teams | | | Belbin test Worksheet (pp. 5-10)  + Slide 12 | 10 |  | | |
| Teams in transition | Different types of teams and how teams are changing | | Students can explain what the advantages and disadvantages of transnational teams are. | | | slides (Slides 13 – 15) | 10 | **Additional Reading**, if you want to include intercultural issues:  *Oertig, M., & Buergi, T. (2006). The challenges of managing cross-cultural virtual project teams. Team Performance Management: An International Journal, 12(1/2), 23-30.*  *Rees-Caldwell, K., & Pinnington, A. H. (2013). National culture differences in project management: Comparing British and Arab project managers' perceptions of different planning areas. International Journal of Project Management, 31(2), 212-227.*  *(3 hrs workload)* | | |
| Summary Teams and Leadership | Summary of chapter 2 (slides 16 + 17)  Review chapter 1 and 2 with open questions to class (slide 18 + 19)  Open plenum question round | |  | | | Slides (16-19) | 10 | **Homework:** student start building teams: 2 hrs | | |
| 4 | 1. **Initiating a Project**   **Project Selection** | | | | | | | **90** | **2 hrs self-study** | | This class can be converted to e-learning. See H5P e-learning slides (pm-session-4-455) plus interactive exercises as group work instructions |
| Introduction to Portfolio Management | Explain why choosing the “right” project is essential  (Slide 4) | | Students become familiar with methods to generate project ideas by developing their own project ideas  Students form teams and apply team development skills  Students are able to apply different tools to manage a project portfolio | | | Slides (4) | 5 |  | |
| Kick off for Project class work | Introduce project class work for the course and some idea generating methods (slides 5 – 7) | |  | | | Slides (5-/)  Room that allows group work | 10 |  | | |
| Generating project ideas (part I) | Group work: Students develop project ideas using design-thinking methods: s. instructions steps 1-4. The teacher should define an overall topic/area/questions for the student projects (e.g. refugees in Europe, elections, etc.) to narrow down the range of possible projects. (Slide 8) | |  | | | Instructions for generating project ideas, post-its or cards,  + Room that allows group work | 30 |  | | |
| Selection and Screening models | Present the different models that help to choose the fitting project | |  | | | Slides(9 – 20) | 30 |  | | |
| Generating project ideas (part II) | Group work: Follow step 5 of the instructions for generating project ideas (slide 21) | |  | | | Instructions for generating project ideas, post-its or cards,  + Room that allows group work | 15 | **Homework:** Student teams finalize project idea (2 hrs workload) | | |
| 5 | **3.2 Conceptual planning** | | | | | | | **90** | **5 hrs self-study** | | |
| Review: | Students mini-presentation (1-2 min per team) | |  | | |  | 10 |  | | |
| Conceptual planning | Discussion: Now that each team has a rough idea about their project. What do you need to develop a more detailed concept? (Slide 5)  Brainstorm. Gather in mindmap on board | | Students understand the need to conceptualise their projects  Students develop a narrow enough objective for their project | | | Board, pen | 5 |  | | |
| SMART Objectives | Conceptual development + SMART objectives Video + short explanation | |  | | | Video + slides ( 6-9) | 10 | You can also move this to an e-learning session. Please see the H5P e-learning slides (pm-session-4-455) | | |
| Project Scope | Explaining the necessity of defining a clear scope and the use of a scope statement/statement of work  Ending with mini-quiz (slides 10 – 15) | |  | | | slides | 15 |
| Teamwork: Objective | Groups have 15 min to develop an objective. They should write it down on paper. Papers will be exchanged between groups afterwards. The other group reads the objective and reflects on whether this is a SMART objective. | | Students are able to formulate a SMART  Students apply their teamwork skills  Students work on their feedback skills | | | Room that allows group work | 25 |  | | |
| Work Breakdown Structure | Present WBS as a tool to break the project into the different activities (slides 17-24)  Homework instructions (slide 25) | | Students are able to develop a WBS | | | Slides | 20 | **Homework:** In your team, develop a WBS for your project (approx. 5hrs. workload)  I let the teams work on each tool in their self-study time each week. If you have more class time you can as well include this in the class session. | | |
| 6 | 1. **Project Planning**   **Stakeholder management** | | | | | | | **90** | **9 hrs self-study** | | |
| Review on WBS | Group work: 1. Each team exchanges WBS with neighbouring team and provides feedback | | Review + Warm-up | | | Group feedback on homework (slide 3) (10 mins.)  Open Questions on WBS (5 mins.)  Next potential step: Combine Team management with WBS (Responsibility Matrix) (Slide 5) | 15 | **Additional Reading:** Globerson, S. (1994). Impact of various work-breakdown structures on project conceptualization. International Journal of Project Management, 12(3), 165-171.  (Workload 1 hr) | | |
| Stakeholder Management | Presenting different tools used at the different stages of a project  Ending with mini-quiz  (Slides 6 – 24 | | Students understand functioning and relevance of stakeholder analysis | | | Slides 6 – 24  *You can make this more interactive, if you spin a short project story around the sample actors and ask students to contribute to the tool inputs* | 45 | **Additional Readings**: Newcombe, R. (2003). From client to project stakeholders: a stakeholder mapping approach. *Construction Management and Economics,* 21(8), 841-848.  Aaltonen, K., & Kujala, J. (2010). A project lifecycle perspective on stakeholder influence strategies in global projects. *Scandinavian Journal of Management*, 26(4), 381-397.  (Workload 2 hrs) | | |
| Example: Stakeholder Analysis | Student team shortly explains their project; open brainstorm with class on stakeholders 🡪 written them on sticky notes. Develop map, participation table, and action profile jointly on board | | Students are able to identify stakeholders and use tools to develop stakeholder management | | | Board, pen, sticky notes | 30 |  | | |
| Summary of tools |  | |  | | | slides | 5 | Homework: In team, develop stakeholder management for your project (approx. 6 hrs. workload) | | |
| 7 | **4.2 Project scheduling (1/2)** There is a 10 min time buffer in this session | | | | | | | **80** | **2 hrs self-study** | | |
| Reflection of team structure and of stakeholder management tools | Plenum discussion:  How useful where the tools?  How did the team cooperation work?  Any intercultural differences?  How was your team organised?  (Slides 3 + Status Review slide 4) | | Students reflect on their team work, team structure and approach | | |  | 20 |  | | |
| Project Scheduling Introduction | Explain the purpose and the terms | | Students know basic terms of time planning | | | Slides (5-11) | 15 |  | | |
| Developing a Network Diagram | Students shall first brainstorm the different activities; ask questions, if they stay too superficial. Should be 15 – 20 activities. 🡪 write them on sticky notes.  Then develop the sequence of the activities in a network diagram. If their activities are too linear, question which ones can take place parallel. | | Students reflect on their time and activity planning approach in a “project” (term paper) that they know well | | | Board, pen, sticky notes  Which activities and in which order do you undergo when you write a term paper? (Slide 12)  ***Important: Take a picture of the result and take the sticky notes with you. You need both to continue in the next session*** | 25 | Comment: Here I do not use their own project as an example but “writing a term paper“ as all students can relate to this. Furthermore, students are usually quite astonished to see how lengthy this “project” actually is and some understand finally why they often encounter time difficulties when writing a term paper. | | |
| Summary: Network diagram approach and terms + short quiz | Here I explain the different termini and different approaches to connect activities | | Students understand the different approaches to construct a network diagram | | | Slides (13-21)) | 20 | **Potential further homework:** Search for scheduling software  - Each team presents one software (advantages vs. disadvantages)  (Workload 2 hrs) | | |
| 8 | **4.2 Project scheduling (2/2)** | | | | | | | **90** | **10 hrs self-study** | | |
| Start: Network diagram from last week | Include the picture from last week in the slide | | Warm up | | | Review (slide 4) | 5 |  | | |
| Duration estimation | Explain how to estimate activity durations | | Students know and are able to apply critical path analysis  Students reflect on potential issues in their past time management (on writing term papers) | | | slides (5 – 9) | 10 |  | | |
| Duration estimation of Network | In open plenum with students  Gather on board in the network you developed last session | |  | | | Pen, board + your network plan (sticky notes) from last session  Apply the approach to the network we developed last week (slide 10 + board) | 10 |  | | |
| Critical path analysis | Explain concept and purpose | |  | | | Slide 11- 15 | 10 |  | | |
| Critical path analysis of network | In Open plenum with students  Apply the approach to the network we developed last session (slide 16) | |  | | | Pen, board + your network plan (sticky notes) from last session | 10 |  | | |
| Gantt chart | Demonstrate how time planning with Gantt charts works | |  | | | Slides (17- 21) | 15 |  | | |
| MS Project | Demonstrate critical path analysis and Gantt charts in MS Project with Video tutorial  (Slides 22+ 23) | | Students familiarise with the most common project scheduling software | | | Slides (Video + sound) or your own demonstration with your own software | 15 | Comment: I usually show students MS Project, as it is the most commonly known. I explain that many companies in the end use their own software and encourage students to play with MS Project and other open source software such as Project Libre… | | |
| Summary | Open plenum  Discuss pros and cons of the different approaches (slide 24 – 26) | | Students critically reflect on different approaches | | |  | 10 | **Potential further reading:** Caughron, J. J., & Mumford, M. D. (2008). Project planning: The effects of using formal planning techniques on creative problem‐solving. Creativity and Innovation Management, 17(3), 204-215. (Discuss different planning approach and can show that critical path produces better outcomes)  (Workload 1 hrs)  **Homework:** In team, develop network diagram with critical path analysis and a Gantt chart for your project (pprox.. 9 hrs. workload) 🡪 Upload to learning platform for feedback | | |
| 9 | **4.3 Budget Planning** | | | | | | | **90** | **9 hrs self-study** | | |
| Review | Cost management and its relation to WBS and scheduling (slide 5) | |  | | | slide | 5 |  | | |
| Quiz: Types of costs | Slides + Open plenum. Ask students to explain types of costs (students should know the types of costs from previous finance classes and should be able to explain them in detail.) | | To review existing knowledge | | | Introduction to cost management + short review of types of costs  (Slide 6 +7) | 10 |  | | |
| Cost Estimation + Activity-Based Costing | Explain cost estimation + activity-based costing, ending with a mini-quiz | |  | | | Slide (8-19) | 30 |  | | |
| Discussion on public project cost estimation/low initial estimates | Open plenum  Discussion on “What are reasons for these frequent cost overruns?” (Slide 20) | | Students reflect on the external constraints that a PM/project planner faces | | |  | 10 | **Additional Reading:** Flyvbjerg, B., Holm, M. S., & Buhl, S. (2002). Underestimating costs in public works projects: Error or lie?. Journal of the American planning association, 68(3), 279-295.  (workload 1 hr) | | |
| Develop example cost plan for a student project | Active plenum  Brainstorm in active plenum method (students present their case on the board, teacher sits in the back, plenum discusses solution) (slide 21) | | Students are able to develop… | | |  | 30 | **Homework:** In team, budget plan for your project (approx. 8 hrs. workload)  Comment: Students should plan realistic budget 🡪 external sources needed to validate numbers | | |
| 10 | **4.4 Risk Management** | | | | | | | **90** | **8 hrs self-study** | | |
| Review on Budget | Group work: Each team exchanges budget plan with neighbouring team and provides feedback | | Review + Warm-up | | |  | 10 |  | | |
| Introduction. Defining risk management |  | |  | | | Slides (4-11) | 15 |  | | |
| Discussion on “uncertainty” management | Open plenum discussion Discuss the suggestion of the article, trying to focus more on the bigger picture and all uncertainties (Slide 12) | | Students reflect the terms risk and uncertainty | | | Slide + article | 10 | **Additional Reading:** Ward, S., & Chapman, C. (2003). Transforming project risk management into project uncertainty management. International Journal of Project Management, 21(2), 97-105.  (Workload 1 hr) | | |
| Risk Planning (incl. risk breakdown structure + risk impact matrix) | Demonstrating the tools | | Students are able to identify different risks associated with their project and develop mitigation strategies | | | Slides (13-15) | 10 |  | | |
| Develop RBS and Impact Matrix for one student project | In open brainstorm with students | |  | | | Board, pen, sticky notes | 15 |  | | |
| Project Risk Scoring | Explaining approach | |  | | | Slides (17-18) | 10 | You can also transfer this part into e-learning as the slides and examples are rather self-explanatory. Please see H5P e-learning (pm-10-13-06-486) | | |
| Quiz+ test question | On Project risk scoring (slide 19-20) | |  | | | slides | 5 |
| Risk Mitigation + Control | Presenting common mitigation strategies + showing different excel tools for risk management  I actually show different excel templates that I have used in my previous projects (slides 21+23)  Then I go back to the board and brainstorm shortly on some mitigation strategies for the student example project. | |  | | | Slides + excel examples | 15 |
| **Homework:** In team, develop a risk impact matrix + mitigation strategies for your project (approx. 7 hrs. workload) | | |
| 11 | **5. Monitoring + Closing** | | | | | | | **90** | **9 hrs self-study** | This session can be used as e-learning. Please see H5P e-learning (pm-10-13-06-486) | |
| Review Risk Management | Open plenum | |  | | |  | 10 |  |
| Introduction | Monitoring and evaluation; Milestone analysis + Earned Value Management (slides 4-13) | | Students understand differences between monitoring & evaluation  Students know the main monitoring approaches | | | slides | 20 | **Further readings:**Pajares, J., & Lopez-Paredes, A. (2011). An extension of the EVM analysis for project monitoring: The Cost Control Index and the Schedule Control Index. *International Journal of Project Management,* 29(5), 615-621.  Hazır, Ö. (2015). A review of analytical models, approaches and decision support tools in project monitoring and control. *International Journal of Project Management,* 33(4), 808-815.  Workload approx.: 2 hrs | | |
| Examples of Earned Value Management | In small teams Let students calculate 3 examples (slides 14-16) | |  | 15 |  | | |
| Result-Based Monitoring |  | |  | | | Slides (18 – 23) | 20 | I like to introduce result-based monitoring as another monitoring approach, trying to see the picture instead of the pure cost and time focus such as EVM  Further result chain examples: <http://winderl.net/resultschain/>  And <https://www.youtube.com/watch?v=7d0Ue64xJL0> | | |
| Develop a result chain for one of the student projects | Open Plenum | | Students are able to develop a result chain | | | Board, pen, sticky notes | 10 | If you have the time and resources in your course, you can include a homework here and include the result chain as the 6th tool for the student’s project report  (approx. 7 hrs. workload) | | |
| 5.2. Project Termination |  | |  | | | Slides (29 – 36) | 15 |  | | |
| 11 | **Introduction to Agile Project Management** | | | | | | | **90** |  | | |
|  | Invite a guest speaker from a project management consultancy on agile Project management | | Students are introduced to other approaches to project management | | Discuss under which circumstances this approach is working and when not + what are preconditions | | |  | Comment: I am convinced students need to understand common tools of project management to be able to work agile. Hence, I introduce agile Pm just in this one session as a teaser with the help of an external speaker | | |
| 12 | **Video prototypes** | | | | | | | **90** | **10 hrs self-study** | | |
| Student teams develop a video prototype of their project | The video prototype serves to prepare the project pitch in session 13. Students present their project in a one-minute video prototype, using their smart phone to record the video and to upload it to a learning platform or a cloud.  Students should use the script template to structure the plot of their video and follow the instructions (s. material). | | Students can present the core idea behind their project within one minute  Students increase their creative and technical skills by producing a video prototype | | | Smart phones, flip chart paper, felt pens in different colours, glue, script template & instructions | 45 | Deadline Reports:  (Workload to finalize report: 10 hrs) | | |
| Students present the video prototypes and vote for the best prototype | Videos on student projects  Online poll  Group discussion | | socrative | 45 | Once all video prototypes are online, watch the video prototypes together. Let students vote for the best video using socrative.com. (There could also be different categories, e.g. best character, best plot, most creative, etc.) Discuss criteria for good video prototypes with students. | | |
| 13 | **Summary/Project Pitch** | | |  | | | | **90** | **3 hrs self-study to prepare pitch** | | |
| Pitch | Let the student teams pitch their projects (max. 5 mins. per team) | | Students understand the challenges of project pitching  Students use their team skills to use the 5 min. effectively | |  | | 45 | I provide students befor with information on pitching: <https://hbr.org/2003/09/how-to-pitch-a-brilliant-idea>  And an example pitch: <https://www.youtube.com/watch?v=ni0hVJlOrlk> | | |
| Vote for best pitch | Let the students vote by using sticky pins for points | |  | |  | | 20 |  | | |
| Summary of the course |  | |  | | slides | | 20 |  | | |
| 14 | **Feedback session** | | | | | | | **90** |  | | |
|  | In class general feedback |  | |  | |  | | 40 |  | | |
|  | Individual feedback per Team |  | |  | | 10 min per Team | | 50 |  | | |