

Exam
Fundamentals of project management
Summer term 2019

Name:
First name:
Target degree: <input type="checkbox"/> Bachelor <input type="checkbox"/> Master <input type="checkbox"/> Diplom
Field of study:
Matriculation number:
<i>I hereby declare that I feel that I am auditable (§ 39(10) AllgStuPO of 8 May 2013)</i>
Date & Signature

General notice:

1. Allowed maximum time is 60 minutes. You can score a maximum of 30 points in total.
2. enter the solution for the tasks in the areas provided.
3. enter your matriculation number on each sheet of processing paper.
4. questions may be answered in German or English.
5. Please write with a blue ballpoint pen (no pencils or red pencils). Do not use any correction tools (e.g. Tipp-Ex).
6. permitted tools: calculator and non-electronic dictionary.

Good luck

Task	1	2	3	Total
Achieved score	/ 10	/ 5	/ 15	/ 30

1. Project Management Lecture (10 Points)

For the entire statement, decide whether it is true or false. (1 point for each statement).

Mark your decision with a cross in the following way:

If you would like to make a correction, please fill in the field completely and tick the other option:

Complex projects with fixed deadlines, which are operated by organizations under significant liquidity stress, often have to compromise on reaching the quality objectives.	<input type="radio"/> true <input type="radio"/> false
Project tasks must always be of significant newness or innovativeness, as committing significant resources for developing a project organization is only justified for costly, complex, and innovative tasks.	<input type="radio"/> true <input type="radio"/> false
Project classification as a generic project management task is typically considered as a part of project performance measurement, as projects are classified into successful, failing, and 'still uncertain' projects.	<input type="radio"/> true <input type="radio"/> false
So called strategic projects differ from operation projects based on their long-term perspective, strong relevance of the project task for the whole organization, and their level of available information. Due to their importance, strategic projects are rooted in clearly delineated and detailed information of little uncertainty, which allows to define project objectives and tasks with great precision.	<input type="radio"/> true <input type="radio"/> false
Firms often follow specific project management standards to increase efficiency of their project management. Among other advantages, standards help securing comprehensiveness of project management approaches even across different project tasks and groups.	<input type="radio"/> true <input type="radio"/> false

<p>Projects, which only require very limited resource investments to fully achieve project objectives, do not require any risk management.</p>	<p><input type="radio"/> true <input type="radio"/> false</p>
<p>Thorough risk management always starts with developing a comprehensive list of relevant risks. To achieve comprehensiveness, a combination of multiple approaches, including building on a conceptual framework, learning from past project experiences, and interacting with knowledgeable project stakeholders is needed.</p>	<p><input type="radio"/> true <input type="radio"/> false</p>
<p>Routine tasks typically differ from project tasks, as they repeat themselves, are open to standardization, and allow results to be reproduced. Hence, routine tasks are often subject to continuous improvement efforts, which are more difficult to achieve for project tasks.</p>	<p><input type="radio"/> true <input type="radio"/> false</p>
<p>The efficiency of the cost planning depends on the definition of the work packages.</p>	<p><input type="radio"/> true <input type="radio"/> false</p>
<p>Project teams will develop in several stages, as described in the four-stage team development model by Tuckman. In the first stage group rules are tested, some members will resist control of the group leader and sanction-based experience is collected.</p>	<p><input type="radio"/> true <input type="radio"/> false</p>

2. Guest Lecture (5 Points)

Please decide if the characteristics describes the “Waterfall” or the “Agile” Project Management Model. (0,5 points for a correct decision)

Mark your decision with a cross in the following way:

If you would like to make a correction, please fill in the field completely and tick the other option:

Learning driven	<input type="radio"/> Waterfall <input type="radio"/> Agile
Development in cross-functional teams	<input type="radio"/> Waterfall <input type="radio"/> Agile
Stakeholders need the ability to modify the scope	<input type="radio"/> Waterfall <input type="radio"/> Agile
Rapid deployment is the goal	<input type="radio"/> Waterfall <input type="radio"/> Agile
Customers know what they want	<input type="radio"/> Waterfall <input type="radio"/> Agile

Six measurements were Introduced, describing how to overcome the commonly faced key challenges during an Agile Transformation, name five of them (0,5 points each):

1. _

2. _

3. _

4. _

5. _

6. Screencasts (15 points)

6.1. Draw a activity-on-arrow network (8 points)

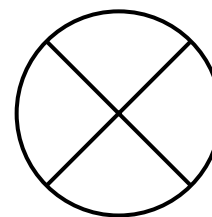
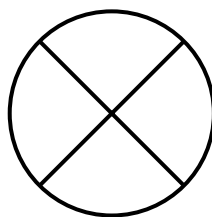
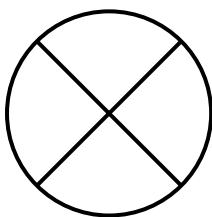
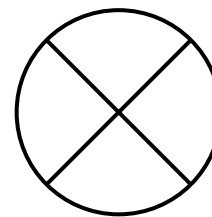
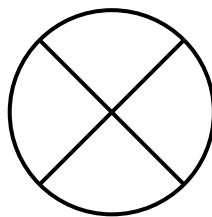
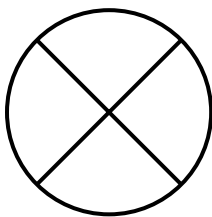
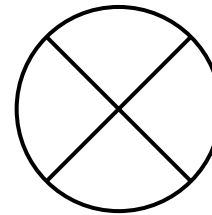
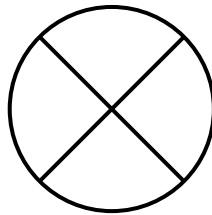
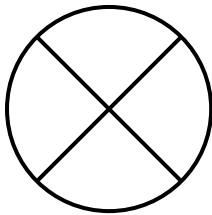
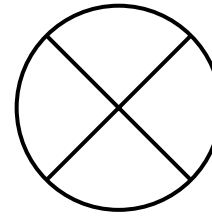
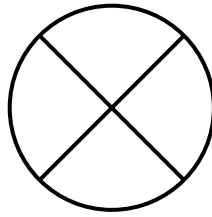
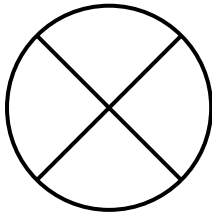
Given the following activity list, draw a minimal and complete activity-on arrow network.

#	Activity	Duration	Predecessor
1	Select date	10	-
2	Select personnel	7	-
3	Check budget	7	1
4	Select location	5	1
5	Prepare materials	9	1; 2
6	Invite personnel	3	4; 5
7	Engage instructor	5	3; 4; 5

Present your solution in the template on the next site using the given legend for CPM. All used nodes have to be filled out completely. Please mark the activities of the critical path and answer the two questions below.

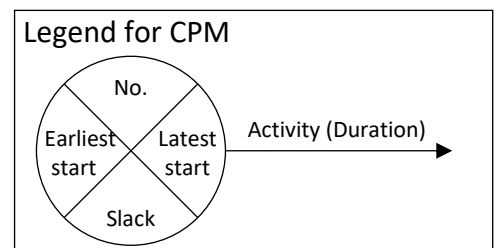
Question (independent from each other)	Answer
What is the effect on the project deadline if activity "Check budget" needs 1 time period less? (1 point)	
What is the effect on the deadline of the project if activity "Invite personnel" requires a duration of 9 time periods? (1 point)	

Template for task 6.1



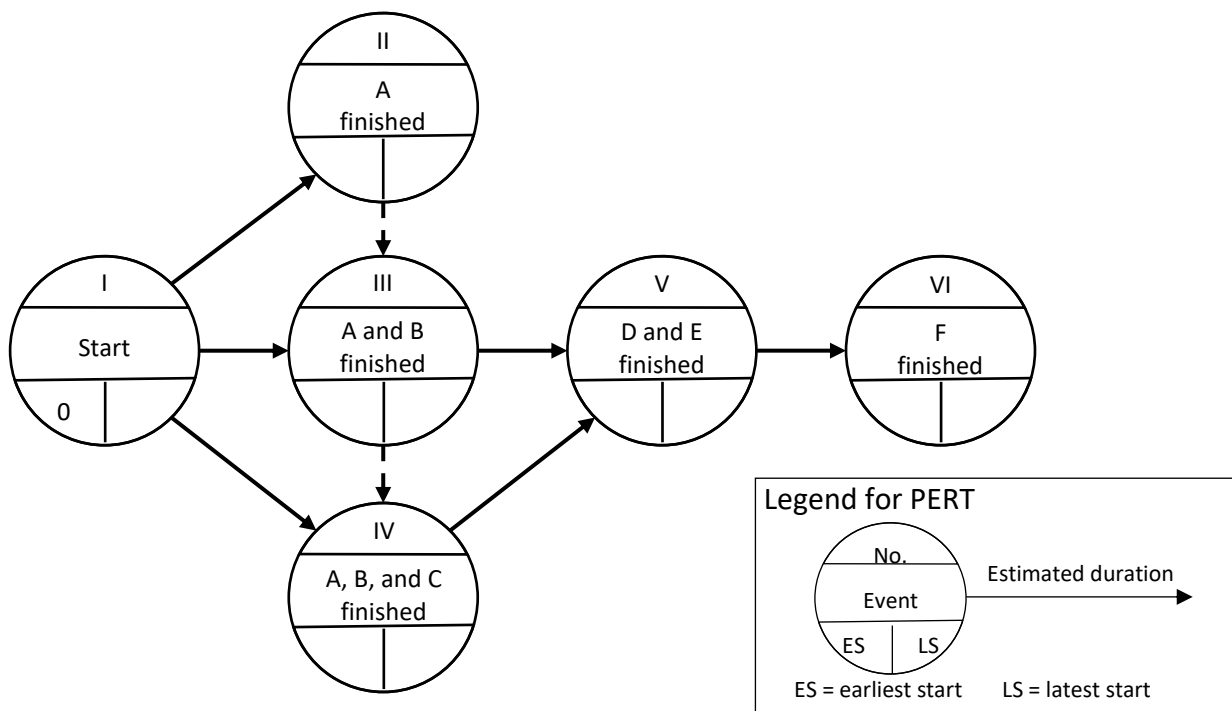
Points for network

- construction: / 2.0 points
- labeling: / 2.0 points
- calculation: / 1.5 points
- critical path: / 0.5 points
- questions / 2.0 points



6.2. Uncertainty (7 Punkte)

#	Activity	Predecessor	Duration [days]				Variance
			t_o	t_M	t_p	t_E	
1	A	-	8	10	12		
2	B	-	5	6	7		
3	C	-	13	15	23		
4	D	1; 2	10	12	14		
5	E	1; 2; 3	11	20	29		
6	F	4; 5	6	6	6		



Probabilities of the Normal Probability Distribution:

Z	0	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8880
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015

Use the given activity list and the draft of the corresponding activity-on-arrow network (PERT) to answer the following questions: (one decimal place/rounded to integer)

Question	Answer
Which activities are part of the critical path? (2 points)	
What is the length of the critical path? (2 points)	
What is the variance of the critical path? (1 point)	
<p>As an alternative to the calculated values above you can use the following once for the next questions: length of 43 days; variance of $2.\bar{8}$ days.</p> <p><input type="checkbox"/> own values (from the questions above)</p> <p><input type="checkbox"/> alternative values</p>	
<p>What is the probability that the project will be completed within 45 days? (1 point)</p>	
<p>By what date D are we 72 % sure that the project will be completed? (1 point)</p>	

Total: 30 points