

Appendix

Criteria for grading

Grade 1 (1-19%)	Grade 2-3 (20-39%)	Grade 4-5 (40-54%)
Know 'what'		
<ul style="list-style-type: none"> • Separate unrelated elements of technical information • complete lack of structure declarative knowledge 	<ul style="list-style-type: none"> • Significant gaps in technical information • fragmented unstructured declarative knowledge 	<ul style="list-style-type: none"> • incomplete, inaccurate or partly flawed information • badly structured declarative knowledge • partial recognition separate blocks of knowledge and relating them to each other
<ul style="list-style-type: none"> • Poor understanding of the subject • misinterpretation or lack of logic in explanation 	<ul style="list-style-type: none"> • Poor understanding of the subject • rude errors in the interpretation of individual elements without boundaries areas of knowledge 	<ul style="list-style-type: none"> • Understanding the key aspects subject • general area boundaries knowledge
Know 'how'		
<ul style="list-style-type: none"> • rough idea of existing methods and analytical techniques 	<ul style="list-style-type: none"> • Ability to describe an opportunity • some methods and analytical techniques 	<ul style="list-style-type: none"> • Ability to apply a limited range of standard methods and analytical techniques • significant errors obvious
<ul style="list-style-type: none"> • Poor analytical skills or erroneous reasoning 	<ul style="list-style-type: none"> • Initial analytical ability and unconvincing argumentation 	<ul style="list-style-type: none"> • Ability to carry out simple analysis • demonstrate weak evidence-based reasoning
Critical thinking / research		
<ul style="list-style-type: none"> • Lack of independence of thinking • limited ability to reproduce the structure of the existing knowledge or to compare it to individual blocks 	<ul style="list-style-type: none"> • First level independent thinking skills • partially or with errors reproduce available knowledge 	<ul style="list-style-type: none"> • Enough level independence of thinking • ability to compare individual blocks of existing knowledge
<ul style="list-style-type: none"> • Making a guess about possible problems of existing research and designation approaches to their solution 	<ul style="list-style-type: none"> • Ability to find problems to existing research • describe possible approaches to solution 	<ul style="list-style-type: none"> • Ability to formulate research question • describe possible approaches to solution by comparing alternatives

Grade 6 (55-59%)	Grade 7 (60-79%)
Know 'what'	
<ul style="list-style-type: none"> • Complete but not detailed information • some inaccuracies in structure of the declarative knowledge • insignificant errors in identifying individual knowledge blocks and connections between them 	<ul style="list-style-type: none"> • Full and detailed technical information • allowing minimal inaccuracies in structuring declarative knowledge within PUD

<ul style="list-style-type: none"> • General understanding of the material • demonstrating including and a rough idea of common boundaries of knowledge 	<ul style="list-style-type: none"> • Excellent understanding of the subject in the framework of the WPP, including the designation knowledge boundaries
Know 'how'	
<ul style="list-style-type: none"> • Ability to apply a range of methods and analytical techniques • making minor mistakes 	<ul style="list-style-type: none"> • Ability to apply the full spectrum methods and analytical techniques • making minor mistakes
<ul style="list-style-type: none"> • Ability to carry out complex analysis • demonstrate confident evidence-based reasoning 	<ul style="list-style-type: none"> • Ability to conduct complex analysis • demonstrate confident evidence-based reasoning
Critical thinking / research	
<ul style="list-style-type: none"> • Skills at a good level • independently reproduce (classify) and expand the boundaries of existing knowledge 	<ul style="list-style-type: none"> • high level independence of thinking • ability to synthesize new knowledge
<ul style="list-style-type: none"> • Ability to formulate research question • find solution by allowing separate inaccuracies • evaluate alternative approaches 	<ul style="list-style-type: none"> • Ability to formulate research question • critically evaluate possible alternative solutions

Grade 8 (80-89%)	Grade 9-10 (90-100%)
Know 'what'	
<ul style="list-style-type: none"> • Wide range and accurate technical information • clearly structured declarative knowledge 	<ul style="list-style-type: none"> • Extended range and accurate technical information • independently structured declarative knowledge, including information from additional sources
<ul style="list-style-type: none"> • Deep understanding of the subject • clear explanation of the area boundaries knowledge 	<ul style="list-style-type: none"> • own interpretation of material • demonstrating a comprehensive understanding of the subject that exceeds requirements, • proactive exploring additional resources
Know 'how'	
<ul style="list-style-type: none"> • Ability to choose and apply effectively appropriate methods and analytical receptions 	<ul style="list-style-type: none"> • Ability to effectively apply modern methods and analytical techniques, • demonstrate flexible procedural knowledge
<ul style="list-style-type: none"> • Excellent analytical skills • comprehensive conclusive evidence argumentation 	<ul style="list-style-type: none"> • Excellent analytical skills • unconventional flawless evidence-based argumentation; • demonstrates the quality of work performed during the study of the discipline
Critical thinking / research	
<ul style="list-style-type: none"> • very high level of independence thinking • ability to synthesize new significant knowledge 	<ul style="list-style-type: none"> • Excellent level of originality of thinking • Skills to generate new areas of knowledge
<ul style="list-style-type: none"> • Ability to formulate relevant research question • find optimal solution 	<ul style="list-style-type: none"> • Outstanding ability to set unique research question • find non-standard solutions and evaluate them critically

- | | |
|---|--|
| <ul style="list-style-type: none">• critically evaluate existing alternative approaches | |
|---|--|