

Date: _____ Educational organization of origin: _____

Title / Version: _____ Course Code: TSC-4064-2: Waste Management

| CONCEPTS AND TECHNIQUES | | | | |
|-------------------------|--------------------------------|----------------------------|----------------------------------|----------------|
| General Concepts | Compulsory Concepts | Theory Part | | Practical Part |
| | | Evaluation of Competencies | Evaluation of Explicit Knowledge | |
| Ecology | Ecological footprint | | | |
| | Ecotoxicology | | | |
| Biogeochemical Cycles | Phosphorus cycle | | | |
| Lithosphere | Contamination | | | |
| | Soil depletion | | | |
| | Buffering capacity of the soil | | | |
| Hydrosphere | Contamination | | | |
| | Catchment area | | | |
| | Eutrophication | | | |
| Atmosphere | Contamination | | | |
| | Atmospheric circulation | | | |
| Organization of Matter | Periodic table | | | |
| | Simplified atomic model | | | |
| | Atomic number | | | |

| General Concepts | Compulsory Concepts | Theory Part | | Practical Part |
|-------------------------------------|-----------------------------------|----------------------------|----------------------------------|----------------|
| | | Evaluation of Competencies | Evaluation of Explicit Knowledge | |
| Organization of Matter (Cont.) | Relative atomic mass | | | |
| | Periodicity of the properties | | | |
| | Isotopes | | | |
| | Lewis notation | | | |
| | Polyatomic ions | | | |
| | Nomenclature and notation rules | | | |
| | Concept of mole | | | |
| | Avogadro's number | | | |
| Physical Properties of Solutions | Solubility | | | |
| | Strength of electrolytes | | | |
| | Concentration in mol/L | | | |
| Chemical Changes | Precipitation | | | |
| | Oxidation | | | |
| | Decomposition and synthesis | | | |
| | Stoichiometry | | | |
| | Acid-base neutralization reaction | | | |
| | Salts | | | |
| | Types of bonds | | | |

| General Concepts | Compulsory Concepts | Theory Part | | Practical Part |
|--------------------------|-----------------------------------------------------------------------------|----------------------------|----------------------------------|-------------------------------------------|
| | | Evaluation of Competencies | Evaluation of Explicit Knowledge | |
| Nuclear Transformations | Nuclear stability | | | |
| | Fission and fusion | | | |
| | Radioactivity | | | |
| Biotechnology | Wastewater treatment | | | |
| | Biodegradation of pollutants | | | |
| Categories of Techniques | Techniques | | | Practical Part Evaluation of Competencies |
| Laboratory Work | Safely using laboratory materials and equipment | | | |
| | Preparing solutions | | | |
| Measurement | Using measuring instruments | | | |
| | Checking the reliability, accuracy and sensitivity of measuring instruments | | | |
| | Interpreting measurement results (significant figures, measurement errors) | | | |

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| <p>Eight to ten general concepts including the organization of matter and chemical changes, as well as a representative sample of compulsory concepts are evaluated throughout the entire examination which respects the requirements of the DED.</p> | |
| <p>Evaluation of competencies:</p> <ul style="list-style-type: none"> • Four to six general concepts are evaluated. For these general concepts, a representative sample of the compulsory concepts is evaluated. • Both categories of techniques are evaluated. For both categories, at least four techniques including safely using materials and equipment are evaluated. | |
| <p>Evaluation of explicit knowledge:</p> <ul style="list-style-type: none"> • Four to six general concepts are evaluated. For these general concepts, priority is given to compulsory concepts that were not evaluated in the evaluation of competencies. | |

| THEORY PART | | | |
|--------------------------------------------------------------------------------------------------------------------------|--------------|-------------------|--------------------------|
| Global Appreciation | Satisfactory | Revision Required | Comments and Suggestions |
| GUIDE | | | |
| General and compulsory concepts are clearly identified. | | | |
| The number of general concepts evaluated respects the requirements of the DED. | | | |
| For each general concept, representative samples of the compulsory concepts are evaluated. | | | |
| Provided materials: | | | |
| • Adult’s Booklet | | | |
| • Correction Key | | | |
| • Guide | | | |
| • Evaluation Booklet | | | |
| Authorized materials respect the requirements of the DED. | | | |
| Duration of the examination is 2 hours. | | | |
| ADULT’S BOOKLET – EVALUATION OF COMPETENCIES SECTION | | | |
| 1 to 3 Scenarios with 4-7 tasks (at least one task per scenario). | | | |
| The scenarios are open-ended and present a problem to be solved as well as an opinion, comparison, or choice to be made. | | | |
| Tasks are complex; they are related to the context of the scenario. | | | |

| THEORY PART (Cont.) | | | |
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| Global Appreciation | Satisfactory | Revision Required | Comments and Suggestions |
| ADULT'S BOOKLET – EVALUATION OF COMPETENCIES SECTION (Cont.) | | | |
| Tasks are complex, incorporating the following characteristics: <ul style="list-style-type: none"> • Mobilize several concepts • Permit several solutions • Use judgment, reasoning or analysis • Require an opinion or a choice to be made • Propose a problem to be solved • Mobilize the 3 evaluation criteria | | | |
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| ADULT'S BOOKLET – EVALUATION OF EXPLICIT KNOWLEDGE SECTION | | | |
| The booklet comprises 3 to 8 questions. | | | |
| Questions contain minimal or no context. | | | |
| The questions are varied in form and relate to each of the first 3 levels of cognitive skill (Knowing, Understanding and Applying). | | | |
| Concepts not assessed in the evaluation of competencies section are taken into account. | | | |

| THEORY PART (Cont.) | | | |
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| Global Appreciation | Satisfactory | Revision Required | Comments and Suggestions |
| ADULT'S BOOKLET GENERAL | | | |
| The visual aspect is appropriate (layout, illustrations, spaces for answers, etc.). | | | |
| The methods of representation are varied (graphs, tables, texts, equations, diagrams, etc.). | | | |
| The level of difficulty is appropriate. | | | |
| Scenarios are free of stereotypes, discriminations or offensive elements. | | | |
| Content is original (not based on educational accounts or other materials) and is mathematically and scientifically sound. | | | |
| The appendices (tables, formulas and quantities) are complete and conform to the DED. | | | |
| Copyright: <ul style="list-style-type: none"> • Rights have been obtained, with supporting documents clearly indicating sources (if necessary). • The images and texts are copyright-free; the source of each image and text is clearly indicated underneath it. • In the case of photos or drawings made by the authors of the exam, a letter granting copyright permission to GRICS is attached to the examination. | | | |

| THEORY PART (Cont.) | | | |
|--------------------------------------------------------------------------------------------------------------------------|--------------|-------------------|--------------------------|
| Global Appreciation | Satisfactory | Revision Required | Comments and Suggestions |
| CORRECTION KEY | | | |
| Examples of appropriate responses are provided for all tasks and questions. | | | |
| Marking scales are clear. | | | |
| A total of 20 marks are allotted for the explicit knowledge section. | | | |
| EVALUATION BOOKLET | | | |
| The checklist contains observable actions for each criterion. | | | |
| Each observable action connects with the concepts evaluated and respects the elements of the evaluation criteria. | | | |
| The observable actions can be evaluated using the Criterion-Referenced Rubrics. | | | |
| A total of 40 marks are allotted for the evaluation of competencies section. | | | |
| CONCORDANCE OF BOOKLETS | | | |
| There is a concordance between all the documents: <i>Guide, Adult's Booklet, Correction Key, and Evaluation Booklet.</i> | | | |

| PRATICAL PART | | | |
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| Global Appreciation | Satisfactory | Revision Required | Comments and Suggestions |
| GUIDE | | | |
| The general and compulsory concepts evaluated as well as the category of techniques and the techniques are clearly identified. | | | |
| The number of categories of techniques and the techniques evaluated respects the requirements of the DED. | | | |
| The general and compulsory concepts evaluated are coordinated with the theory section. | | | |
| Provided materials: <ul style="list-style-type: none"> • Adult's Booklet • Correction Key • Guide • Evaluation Booklet | | | |
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| Duration of the examination is 2 hours. | | | |
| A list of materials required is provided. | | | |
| If necessary, instructions for the preparation of laboratory materials are provided. | | | |
| The appendix includes a list of materials as well as the procedure to be given to the adult, if requested. | | | |

| PRATICAL PART (Cont.) | | | |
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| Global Appreciation | Satisfactory | Revision Required | Comments and Suggestions |
| ADULT'S BOOKLET | | | |
| The scenario is safe; safety instructions are clearly stated when needed. | | | |
| The scenario proposes at least four tasks associated with each of the four evaluation criteria. | | | |
| The template complies with the DED and the prototype examination. | | | |
| The task is complex with the following characteristics: <ul style="list-style-type: none"> • Mobilizes several concepts • Permits several solutions • Proposes a problem to be solved • Requires the development of a laboratory report, following an outline that is provided • Uses judgment, reasoning or analysis • Mobilizes the 4 evaluation criteria | | | |
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| Content is original (not based on educational accounts or other materials) and is mathematically and scientifically sound. | | | |
| The level of difficulty is appropriate. | | | |
| Scenarios are free of stereotypes, discriminations or offensive elements. | | | |

| PRACTICAL PART (Cont.) | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------|--------------------------|
| Global Appreciation | Satisfactory | Revision Required | Comments and Suggestions |
| ADULT'S BOOKLET (Cont.) | | | |
| The appendices (tables, formulas and quantities) are complete and conform to scientific conventions. | | | |
| Copyright: | | | |
| <ul style="list-style-type: none"> • Rights have been obtained; supporting documents clearly indicate sources (if necessary). • The images and texts are copyright-free; the source of each image and text is clearly identified underneath it. • In the case of photos or drawings made by the authors of the exam, a letter granting copyright permission to GRICS is attached to the examination. | | | |
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| CORRECTION KEY | | | |
| Examples of appropriate responses are provided for all tasks. | | | |
| EVALUATION BOOKLET | | | |
| The checklist contains observable actions for each criterion. | | | |
| Each observable action connects with the concepts evaluated and respects the elements of the evaluation criteria. | | | |
| The observable actions can be evaluated using the Criterion-Referenced Rubrics. | | | |

| PRACTICAL PART (Cont.) | | | |
|--------------------------------------------------------------------------------------------------------------------------|--------------|-------------------|--------------------------|
| Global Appreciation | Satisfactory | Revision Required | Comments and Suggestions |
| EVALUATION BOOKLET (Cont.) | | | |
| A total of 40 marks are allotted. | | | |
| CONCORDANCE OF BOOKLETS | | | |
| There is a concordance between all the documents: <i>Guide, Adult's Booklet, Correction Key, and Evaluation Booklet.</i> | | | |