

THE NATIONAL COUNCIL OF EXAMINERS FOR ENGINEERING AND SURVEYING  
PRINCIPLES AND PRACTICE OF ENGINEERING EXAMINATION

**ENVIRONMENTAL**  
**EFFECTIVE October 2004**

	Approximate Percentage of Examination
<b>I. Water</b>	<b>34%</b>
A. Wastewater	11%
1. Sources of pollution and minimization/prevention	
2. Treatment technologies	
3. Water chemistry	
4. Sampling and measurement methods	
5. Biology/microbiology	
6. Hydraulics/fluid mechanics	
7. Fate and transport	
8. Collection systems	
9. Residuals management (solid, liquid, and gas)	
10. Codes, standards, regulations, and guidelines	
11. Mathematics and statistics	
12. Engineering economics	
B. Stormwater	6%
1. Sources of pollution	
2. Hydrology/hydrogeology	
3. Hydraulics/fluid mechanics	
4. Sampling and measurement methods	
5. Treatment technologies	
6. Collection systems	
7. Fate and transport	
8. Codes, standards, regulations, and guidelines	
9. Mathematics and statistics	
10. Engineering economics	
C. Potable Water	11%
1. Treatment technologies	
2. Water chemistry	
3. Hydraulics/fluid mechanics	
4. Biology/microbiology	
5. Sampling and measurement methods	
6. Distribution systems	
7. Residuals management	
8. Codes, standards, regulations, and guidelines	
9. Mathematics and statistics	
10. Engineering economics	
D. Water Resources	6%
1. Sources of pollution	
2. Hydrology/hydrogeology	
3. Water chemistry	
4. Biology/microbiology	
5. Sampling and measurement methods	
6. Hydraulics and limnology	

7. Fate and transport	
8. Codes, standards, regulations, and guidelines	
9. Mathematics and statistics	
10. Engineering economics	
11. Watershed management and planning	
<b>II. Air</b>	<b>20%</b>
A. Ambient Air	8%
1. Meteorology	
2. Atmospheric chemistry	
3. Sampling and measurement methods	
4. Risk assessment	
5. Codes, standards, regulations, and guidelines	
6. Mathematics and statistics	
B. Emissions Sources	4%
1. Chemistry	
2. Aerosol science	
3. Thermodynamics	
4. Sampling and measurement methods	
5. Fate and transport (dispersion)	
6. Source categories	
7. Odor generation and control	
8. Sources of pollution and minimization/prevention	
9. Codes, standards, regulations, and guidelines	
10. Mathematics and statistics	
11. Engineering economics	
C. Control Strategies	8%
1. Treatment technologies	
2. Air transport systems	
3. Thermodynamics	
4. Aerosol science	
5. Chemistry	
6. Sampling and measurement methods	
7. Sources of pollution and minimization/prevention	
8. Codes, standards, regulations, and guidelines	
9. Mathematics and statistics	
10. Engineering economics	
<b>III. Solid, Hazardous, and Special Waste</b>	<b>20%</b>
A. Municipal Solid Waste (MSW), Commercial, and Industrial Wastes	10%
1. Definition and characterization of different types of solid waste	
2. Sampling and measurement methods	
3. Storage, collection, and transportation systems	
4. Minimization, reduction, and recycling	
5. Risk assessment	
6. Fate and transport	
7. Treatment and disposal technologies	
8. Chemistry	
9. Codes, standards, regulations, and guidelines	
10. Engineering economics	

	Approximate Percentage of Examination
B. Hazardous Waste, Special, and Radioactive Waste	10%
1. Definition and characterization of different types of waste	
2. Sampling and measurement methods	
3. Storage, collection, and transportation systems	
4. Minimization, reduction, and recycling	
5. Risk assessment	
6. Fate and transport	
7. Treatment and disposal technologies	
8. Chemistry	
9. Health physics	
10. Codes, standards, regulations, and guidelines	
11. Mathematics and statistics	
12. Engineering economics	
<b>IV. Environmental Assessments, Remediation, and Emergency Response</b>	<b>26%</b>
A. Environmental Assessments	8%
1. Site assessment	
2. Hydrogeology	
3. Sampling and measurement methods	
4. Historical considerations and land use practices	
5. Fate and transport	
6. Sources of pollution	
7. Exposure/risk characterization	
8. Codes, standards, regulations, and guidelines	
B. Remediation	8%
1. Remediation alternatives	
2. Minimization/prevention	
3. Hydrology/hydrogeology	
4. Codes, standards, regulations, and guidelines	
5. Engineering economics	
6. Sampling and measurement methods	
7. Control technologies	
C. Public Health and Safety	10%
1. Industrial hygiene, health, and safety	
2. Security, emergency plans, and incident response procedures	
3. Fundamentals of epidemiology and toxicology	
4. Exposure assessments	
5. Radiation protection/health physics	
6. Vector control and sanitation, including biohazards	
7. Noise pollution	
8. Indoor air quality	
9. Codes, standards, regulations, and guidelines	
<b>TOTAL</b>	<b>100%</b>

**NOTES:**

1. The knowledge areas specified under A., B., C., ...etc., are examples of kinds of knowledge, but they are not exclusive or exhaustive categories.
2. This examination contains 100 multiple-choice questions. Examinee works all questions.