BROWARD COLLEGE
COURSE OUTLINE

LAST REVIEW: 2009 - 2010 *(i.e. 2003-2004)* **NEXT REVIEW:** 2014 - 2015 *(i.e. 2008-2009)* **STATUS:** A *(A, I, D)*

COURSE TITLE: Hazardous Materials II

COMMON COURSE NUMBER: FFP 2501

CREDIT HOURS: 3

CONTACT HOUR BREAKDOWN *(per 16 week term)*

CLOCK HOURS: *(Voc. Course ONLY)*

Lecture: 48 Lab:

Clinic: Other:

PREREQUISITE(S): FFP2500

COREQUISITE(S): None

PRE/COREQUISITE(S):

COURSE DESCRIPTION *(750 characters, maximum)*: A continuation and expansion of FFP 2500 to include radioactive materials, corrosives, pesticides, rock propellants, and other related materials.

General Education Requirements – Associate of Arts Degree (AA), meets Area(s): Area
General Education Requirements – Associate in Science Degree (AS), meets Area(s): Area
General Education Requirements – Associate in Applied Science Degree (AAS), meets Area(s): Area

UNIT TITLES

1. Explosives Including the Compound Ammonium Nitrate
2. Unstable Materials
3. Rocket Propellants
4. Water Reactive Materials
5. Toxic Materials - Class A, B, and C Poisons.
6. Pesticides, Fungicides, Fumigants.
7. Corrosives
8. Toxic Combustion Products
9. Radioactive Materials -- Class D Poisons

EVALUATION:

Please provide a brief description (250 characters maximum) that details how students will be evaluated on the course outcomes.

1. **Quizzes, Test, and/or Final Exam (cumulative/comprehensive);**
2. **Selected faculty may assess homework, projects, class participation/attendance, and/or extra credit projects.**

Common Course Number: FFP 2501

UNITS

Unit 1 Explosives Including the Compound Ammonium Nitrate

General Outcome:

1.0 The students should be able to discuss the dangers connected with the storage of explosives in general and with ammonium nitrate in particular.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

1.1 Identify low and high explosives.

1.2 Define an explosive.

1.3 Describe variables which affect explosives.

1.4 Describe the used and properties of ammonium nitrate.

1.5 Describe the behavior of ammonium nitrate.

1.6 Discuss fire department procedures that contributed to the Texas City Disaster.

1.7 Discuss the storage and use of this chemical.

Common Course Number: FFP 2501

Unit 2 Unstable Materials

General Outcome:

2.0 The students should be able to demonstrate an understanding of unstable and reactive materials.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

2.1 Differentiate between an unstable and a reactive material.

2.2 Describe the chemical make-up of organic peroxides and their dangers and uses.

2.3 Discuss the flammability, explosive ability and toxicity of organic peroxides.

2.4 Describe the storage requirements for organic peroxides.

2.5 Describe emergency action involving organic peroxides.

2.6 Describe monomers and their use in plastic manufacturing.

Common Course Number: FFP 2501

Unit 3 Rocket Propellants

General Outcome:

3.0 The students should be able to discuss the use and dangers of rocket propellants,

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

3.1 Discuss the hazards of these chemicals.

3.2 Discuss the hazards of baranes.

3.3 Identify a bi-propellant and mono-propellant.

3.4 Discuss the primary objective in ethylene oxide fires.

3.5 Discuss the hazards of a fire in a solid propellant being shipped in a rocket motor.

Common Course Number: FFP 2501

Unit 4 Water Reactive Materials

General Outcome:

4.0 The students should be able to discuss the dangers connected with water reactive materials.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

4.1 Describe the action of water on certain materials.

4.2 Identify the properties of alkali metals.

4.3 Discuss the shipping and storage regulations of the alkali metals.

4.4 Explain how to fight fires in alkali metals.

4.5 Explain the hazards of other group organometallic.

Common Course Number: FFP 2501

Unit 5 Toxic Materials - Class A, B, and C Poisons

General Outcome:

5.0 The students should be able to identify the toxic effects of some chemicals.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

5.1 Describe the nature of poisons.

5.2 Identify various poisons.

5.3 Classify poisons.

5.4 Describe the difference between A, B, C poisons.

5.5 Describe arometec compound.

5.6 Describe the toxic effects of arsenic and mercury.

Common Course Number: FFP 2501

Unit 6 Pesticides, Fungicides, Fumigants

General Outcome:

6.0 The students should be able to discuss the problems involved in the storage of pesticides, fungicides, and fumigants.

Specific Measurable Learning Outcomes:
Upon successful completion of this unit, the student shall be able to:

6.1 List the dangers of pesticides.

6.2 Describe the emergency procedures for pesticide poisoning.

6.3 Describe the nature of fumigants.

6.4 Describe methods of determining lethal doses.

6.5 Discuss the dangers of organic phosphates.

6.6 Examine individual pesticide compounds.

Common Course Number: FFP 2501

Unit 7 Define a Corrosive

General Outcome:

7.0 The students should be able to describe the dangers connected with the storage, use, and transportation of corrosives.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

7.1 Define a corrosive.

7.2 Explain how to handle acid and alkali spills.

7.3 Cite the difference between an acid and an alkali.

7.4 Relate the difference between an organic and inorganic acid.

7.5 Describe the storage and use of corrosives.

7.6 Define the halogens.

7.7 Explain the dangers of the halogens group.

Common Course Number: FFP 2501

Unit 8 Toxic Combustion Products

General Outcome:

8.0 The students should be able to relate the dangers inherent in the toxic products of combustion.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

8.1 Identify the difference between carbon dioxide and carbon monoxide.

8.2 Describe the toxic effects of carbon monoxide.

8.3 Identify other combustion products produced at fires.

8.4 Describe industries uses of carbon dioxide and carbon monoxide.

Common Course Number: FFP 2501

Unit 9 Radioactive Materials - Class D Poisons

General Outcome:

9.0 The students should be able to discuss the dangers of radioactive materials.

Specific Measurable Learning Outcomes:

Upon successful completion of this unit, the student shall be able to:

9.1 Describe the internal structure of the atom.

9.2 Explain how to measure radioactivity and operate measuring instruments and how radiation is used.

9.3 Identify "fissionable" materials.

9.4 Name the different types of radiation and list their dangers.

9.5 Explain how to protect against radiation.