

I. COURSE DESCRIPTION:

Students will learn how to prepare basic pharmaceutical compounds. The complexity of accurate compounding from preparation techniques, calculations, weights, and measures will be covered. The legislation and methods of documentation for these products will be emphasized. The creation of a quality product while maintaining the equipment and lab appropriately will be an expectation in this class.

This course is designed to enable students to attain competencies specified in the National Association of Pharmacy Regulatory Authorities (NAPRA) Professional Competencies for Canadian Pharmacy Technicians at Entry to Practice (March 2014). (Full document available at www.napra.ca)

This course is designed to enable students to attain the educational outcomes specified in the Canadian Pharmacy Technician Educators Association (CPTEA) Educational Outcomes for Pharmacy Technician Programs in Canada (March 2007). (Full document available at www.cptea.ca)

This course is designed to enable students to meet and maintain the standards of practice expected within the pharmacy technician's role. The standards are specified in the National Association of Pharmacy Regulatory Authorities (NAPRA) Model Standards of Practice for Canadian Pharmacy Technicians (November 2011). (Full document available at www.napra.ca)

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. determine the suitable environment/conditions, equipment, and formulation procedures and techniques required to prepare or compound products.

Potential Elements of the Performance:

- Determine the set up requirements needed, including gathering of equipment and supplies; proper selecting and weighing of ingredients.
- Accurately perform pharmaceutical calculations required to compound various non-sterile dosage forms.
- Identify the purpose of each ingredient used in a formulation.
- Describe and discuss the records that are required to be maintained for compounded products.

2. prepare various non-sterile compounded products.

Potential Elements of the Performance:

- Demonstrate competency in the use and completion of master formula sheets.
- Accurately perform pharmaceutical calculations required to compound various non-sterile dosage forms.
- Use clean technique when compounding non-sterile preparations
- Accurately and appropriately use an electronic balance and torsion balance.

3. determine if final product suitable for release.

Potential Elements of the Performance:

- Assure the principles of compounding a product accurately, using proper technique have been applied.
- Assure appropriate packaging and labelling of the finished product.
- Explain and identify the appropriate expiration date, storage and handling conditions for compounded products.

4. comply with legislative requirements and established policies and procedures.

Potential Elements of the Performance:

- Describe and differentiate “compounding” and “manufacturing”.
- Be familiar with and meet the established Good Manufacturing Practices (GMP) guidelines, Ontario College of Pharmacists (OCP) guidelines and Workplace Hazardous Materials Information System (WHMIS) guidelines
- Discuss when the compounding of drug products is appropriate

III. TOPICS:

1. Introduction

- Introduction to compounding
- Why compound
- Advantages and disadvantages of compounding
- Patient considerations
- Role of the pharmacy technician

2. Compounding practices and considerations

- Information resources
- Legislation
- Considerations for stability, solubility, shelf life, storage
- Definitions and terminology

3. Calculations and compounding math

- Dilutions and stock solutions
- Expanding and reducing formulae
- Percentages, conversions

- Alligations
 - Aliquots and triturations
4. Facilities, equipment and supplies
 - Lab practices and safety procedures
 - Operation, maintenance, cleaning and storage of equipment
 - Handling of hazardous materials
 5. Quality assurance and record keeping
 - Definitions of Quality Assurance (QA) and Quality Control (QC)
 - Standard Operating Procedures (SOPs)
 - Formulation records
 - Compounding records
 6. Ointments, creams, pastes and gels
 - Types and definitions
 - Composition and ingredients
 - Preparation and compounding techniques
 - Quality control
 - Packaging, labelling and stability
 7. Solutions, suspensions and emulsions
 - Types and definitions
 - Composition and ingredients
 - Preparation and compounding techniques
 - Quality control
 - Packaging, labelling and stability
 8. Medication flavouring
 - Taste types
 - Flavouring techniques
 - Compatibility

V. REQUIRED RESOURCES/TEXTS/MATERIALS:

1. Compounding – The Pharmacy Technician Series by Mike Johnston ISBN-10:013147609 Publisher : Prentice Hall
2. Introduction to Pharmaceutical Dosage Forms for Pharmacy Technicians, 2014. Marie Atlas and Audrey Faris. Pharmacy Tech. Consultants Ltd. ISBN:978-1-927904-00-8
3. Sault College Learning Management System (D2L)
4. White lab coat and safety glasses

V. EVALUATION PROCESS/GRADING SYSTEM:

Assignment	10%
Labs (3 x 10%)	30%
Tests (2 x 15%)	30%
Final Exam	30%

Total **100%**

Compounding Math Test pass/fail

1. To pass this course, students must achieve an overall course grade of at least 60% (calculated as indicated above) **and** pass the Compounding Math Test. ALL components of this course must be completed to be successful.
2. **Compounding Math Test**: Students must achieve a minimum mark of **80%** to pass.
3. All policies and procedures as outlined in the current Student Success Guide related to submitting assignments, scholarly work/academic honesty, tests and examinations will be followed.
4. **No supplements** will be provided for labs, tests, or the final exam.
5. Students missing labs, tests or the final exam because of illness or other serious reason must contact the professor before the lab, test, or exam to inform him/her (by phone or email). Those students who have notified the professor of their absence, according to policy, will be eligible to arrange an opportunity to complete the lab, test, or exam at another time. Students must contact the professor on their first day back at school following a missed lab, test, or exam. Those students who do not follow the above procedures will receive a zero for that lab, test, or exam. The professor reserves the right to request documentation to support the absence.

The following semester grades will be assigned to students:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D (Fail)	50 – 59%	0.00
F (Fail)	49% and below	
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	

X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty.

Note: For such reasons as program certification or program articulation, certain courses require minimums of greater than 50% and/or have mandatory components to achieve a passing grade.

A minimum of a “C” grade is required to be successful in most PTN coded courses.

It is also important to note, that the minimum overall GPA required in order to graduate from a Sault College program remains 2.0.

VI. SPECIAL NOTES:

Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal and LMS form part of this course outline.