Faculty is required to have the outline submitted to the Academic Affairs Office. The course outline is the form used for approval of new courses by the Academic Affairs and Standards Council.

DEPT. PHRM                      COURSE NUMBER: 1110

NUMBER OF CREDITS: 3

COURSE TITLE: Pharmaceutical Calculations

CATALOG DESCRIPTION:
In this class students will demonstrate proficiency in specific calculation methods and principles related to pharmacy tasks. Students will utilize basic arithmetic principles in completing tasks associated with a pharmacy technician. Throughout this course basic math skills will be reviewed that are necessary for the required calculations that become more advanced as students' progress through the course. Students will also demonstrate understanding of various measurement systems and various dosage calculations.

AUDIENCE: Pharmacy Technician Students

FULFILLS MN TRANSFER CURRICULUM AREA(S) (Leave blank if not applicable)
Area: by meeting the following competencies:
Area: by meeting the following competencies:
Area: by meeting the following competencies:

PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE:
PHRM 1100

LENGTH OF COURSE: Semester

THIS COURSE IS USUALLY OFFERED:
Every other year □ fall □ spring x□ summer □ undetermined □

Four goals are emphasized in course at Minnesota West Community & Technical College:

1) ACADEMIC CONTENT: The academic objectives of this course are:
   a. The academic objectives of this course are to demonstrate fluency and accuracy in basic and advanced pharmacy calculations, necessary in calculating and preparing medications and prescription related to appropriate job functions of a pharmacy technician.
2) THINKING SKILLS: This course will help students improve the effectiveness of their thinking skills through:
   a. This course will help students improve the effectiveness of their thinking skills through critical thinking exercises using various real life scenarios within retail and hospital pharmacy situations.
   b. Students will use prior math knowledge in combination with new knowledge gained in this course to complete the appropriate calculations.

3) COMMUNICATIONS SKILLS: This course will help students improve their oral and written communication skills through:
   a. Participation in online discussions.
   b. Cooperative attitude with other students and instructor.
   c. Ability to communicate via D2L, through email, discussion groups, and classroom materials.

4) HUMAN DIVERSITY: This course will help students recognize, understand, and appreciate human diversity through:
   a. Understanding the need to communicate with a diverse population.
   b. Gaining a self-awareness regarding the feelings toward people regardless of culture, values, or socioeconomic status.

TOPICS TO BE COVERED: This course will cover basic math concepts, in conjunction with math concepts specific to dosage and measurement calculations required for pharmacy calculations.

LIST OF EXPECTED COURSE OUTCOMES:
   a. Interpret roman numerals.
   b. Calculate ratios and proportions.
   c. Demonstrate the conversion of weights and measures and direct ratios and proportions.
   d. Calculate dosages for adults and children based on various parameters.
   e. Demonstrate how to reduce and enlarge proportions.
   f. Demonstrate problem solving skills including specific gravity, percent strength, weight and volume, weight and weight, and volume and volume.
   g. Calculate percentages and strengths of medications.
   h. Demonstrate basic business math principles.
   i. Determine flow rates associated with Intravenous (IV) fluids.
   j. Convert temperatures between Celsius and Fahrenheit.
   k. Determine correct concentrations and dilutions.
   l. Calculate amounts of ingredients needed for a formulation.
   m. Calculated the number of doses required for a prescription order.
   n. Convert metric measurements between apothecary and household measurements.
   o. Discuss how the medication/use process differs in various patient care settings.

LEARNING/TEACHING TECHNIQUES used in the course are:

- [ ] Collaborative Learning
- [x] Problem Solving
- [ ] Student Presentations
- [ ] Interactive Lectures
<table>
<thead>
<tr>
<th>Creative Projects</th>
<th>Individual Coaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>Films/Videos/Slides</td>
</tr>
<tr>
<td>Demonstrations</td>
<td>Other (describe below)</td>
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<tr>
<td>Lab</td>
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**ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:**

<table>
<thead>
<tr>
<th>Reading</th>
<th>Tests</th>
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<tbody>
<tr>
<td>Oral Presentations</td>
<td>Individual Projects</td>
</tr>
<tr>
<td>Textbook Problems</td>
<td>Collaborative Projects</td>
</tr>
<tr>
<td>Group Problems</td>
<td>Term Paper</td>
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<tr>
<td>Other (describe below)</td>
<td></td>
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</tbody>
</table>

**EXPECTED STUDENT LEARNING OUTCOMES:**
Achieve expected course outcomes and a percentage score acceptable to the respective program. Students should be prepared to take the Pharmacy Technician Certification Exam following completion of their pharmacy technician courses.

**Veteran Services:** Minnesota West is dedicated to assisting veterans and eligible family members in achieving their educational goals efficiently. Active duty and reserve/guard military members should advise their instructor of all regularly scheduled military appointments and duties that conflict with scheduled course requirements. Instructors will make every effort to work with the student to identify adjusted timelines. If you are a veteran, please contact the Minnesota West Veterans Service Office.

The information in this course outline is subject to revision

To receive reasonable accommodations for a documented disability, please contact the campus Student Services Advisor or campus Disability Coordinator as arrangements must be made in advance. In addition, students are encouraged to notify their instructor.

This document is available in alternative formats to individuals with disabilities by contacting the Student Services Advisor or by calling 800-658-2330 or via your preferred Telecommunications Relay Service.

**A Member of the Minnesota State Colleges and Universities System**
**An Affirmative Action Equal Opportunity Educator/Employer**

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