**FLORIDA VOCATIONAL INSTITUTE**

**SYLLABUS/LESSON PLAN**

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| **Daily/Weekly Lesson Plan Outline – 4 weeks / 40 Clock Hrs. / 40 Lab Hrs.** | | | | | |
| **COURSE TITLE** | | | | **Review Date:** | |
| **Pharmacy Technician** | | | | **11/20/2015** | |
| **CODE** | **SUBJECT** |  |  | **LEC HRS** | **LAB HRS** |
| **PHT115** | **Math Calculations for Pharmacy technicians** | | | 40 | 40 |
| **COURSE DESCRIPTION:** This course is designed to help the student a solid understanding of pharmacy calculation and business math with an emphasis on pharmacy billing and Reimbursement. Subjects included on this course: Roman Numbers, conversions between metric and house hold system, Dose dosification included on retail and institutional pharmacies, Pediatrics dosification, IV flowrate, and extemporaneous compounding calculations. Out-of-class activities will be assigned and assessed as part of this class.  **Prerequisite:** None  **Required Resources:**  **Text Books:** Math Calculations for Pharmacy Technicians, 2e. Elsevier.  **Learning Resources Center materials are available**  **Instructional Methods:**  Lecture/Discussion  Audiovisual  Research  **Mode of Delivery:**  Residential  **Equipment**/**Technology/Software**  Utilization of power point presentations, media center websites, reference materials, and other technology as available  **COURSE OBJECTIVES:**   * Perform basic math skills. * Interpretation of Roman numerals and Military Time * Understanding the Rules of the Metric System Conversions, Metric System Equivalents, Household Measurements, Apothecary System. * Understand Prescription Components and interpretation * Calculation of solid and liquid administration * Pediatric and special pulsation dose calculations * Calculation of IV flow rate and special computing measurements. | | | | | |
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|  | **Objectives to be covered** | **Lecture/ Labs** | **Method of Assessment** |
| **Week 1** |  |  |  |
| **Day 1** | * Performing basic math skills. * Interpretation of Roman numerals * Military Time | Fractions   * + Numerator and denominator   + Proper and improper   Decimals   * + Expressed in units of tenths   Percent (part of 100)   * + Ratio and proportion   + Always solved by cross-multiplication   Roman numerals   * Convert from Roman numeral to Arabic numbers. * Convert between standard time and military time, temperature conversion | * Handout * Book Exercise |
| **Day 2** | * Understanding the Rules of the Metric System Conversions * Understand Metric System Equivalents | * Amount or volume of a liquid medication is * To convert from a smaller unit of measurement to a larger unit of measurement, move decimal point three places to the left   + Answer will always be a smaller number (Example: 62.4 mg = 0.0624 g)   + To convert from a larger unit of measurement to a smaller unit of measurement, move decimal point three places to the right   + Answer will always be a larger number (Example: 1.7 g = 1700 mg)   + To prevent dosage errors, use a zero before a decimal point to clarify its presence (0.15 mg) but never leave a zero after a decimal point (15.0) because it may not be noticed * The following equivalents can be used to make conversions in the metric system   1 kg = 1000 g  1 g = 1000 mg  1 mg = 0.001 g or 1/1000 g  1 kl = 1000 liters  1 liter = 1000 mL  1 mL = 0.0001 liter or 1/1000 liter | * Handout * Book Exercise |
| **Day 3** | * Household Measurements | * This system of measurement is important for the patient at home who has no knowledge of the metric or apothecary systems, although it is not completely accurate; it should never be used in the medical setting * Basic measure of weight is the pound (lb) and of volume is the drop (gtt)   + 1 gtt = 1 M   + 60 gtt = 1 tsp   + 3 tsp = 1 Tbsp (tablespoon)   + 2 Tbsp = 1 oz   + 8 oz = 1 cup | * Handout * Book Exercise |
| **Day 4** | * Understanding Apothecary System * Apothecary System Abbreviations * Converting between Metric, Household and Apothecary system using proportions | * In the apothecary system, the basic unit of weight for a solid medication is the grain (gr) and the basic unit of volume for a liquid medication is the minim (M) * As in the metric system, these two units are related; the grain is based on the weight of a single grain of wheat, and the minim is the volume of water that weighs 1 gr * Either symbols or abbreviations are used; for example, 1½ drams might be written Diss or dr 1½ * Order: 30 mL of an oral antibiotic. What household unit of measurement is this equal to? * 1 tablespoon equals 15 mL; divide the order by the conversion factor: * 30 mL ÷ 15 mL = 2 Tbsp * Or set the problem up as an equation with the ordered amount on the left side of the equation and the conversion factor on the right side: * 30 mL × 1 Tbsp/15 mL * Cross-multiply, and the mL unit cancels out, so you have: * 30 × 1 Tbsp/15 = 30 Tbsp/15 = 2 Tbsp | * Handout * Book Exercise |
| **Week 2** |  |  |  |
| **Day 1** | * Prescription Components and interpretation | * Describe components of a prescription, interpret prescription and medication orders, * interpret labels found on the medication containers and use proper units of measurement found in pharmacology | * Handout * Book Exercise |
| **Day 2** | * Solid Oral Dosage calculation | * Calculate solid oral dosages, using metric and apothecary * Measurement systems, with the use of ratio and proportion. * Calculate total dosage of solid oral medication necessary for dispensing a physicians’ order while keeping patient safety when dispensing medications. |  |
| **Day 3** | * Liquid Oral Dosage Calculation | * Interpret and calculate the volume of oral and parental liquid medication necessary to administer order doses using ratio and proportion, formula, or dimensional analysis method. * Measure parental medication in order amounts in the appropriate syringe. * Calculate total doses of parental medication when two or more medication are ordered to be given together | * Handout * Book Exercise |
| **Day 4** | * Medication Reconstitution * Single * Multidose Vials * Temperature Conversion | * Determine the appropriate amount of diluent necessary when using single and multidose containers. * Determine the appropriate dilution concentration and diluent necessary when more than one dose strength in the multidose container is possible. * Convert among Fahrenheit scale and Celsius scale using formulas | * Handout * Book Exercise |
| **Week 3** |  |  |  |
| **Day 1** | * Pediatric Dose calculation * Clark’s Rule * Young’s Rule * Fried’s Rule * Special population Dose Calculation * Body Surface Area (BSA) | * Calculate pediatric doses using Clark’s Rule, Young’s Rule and Fried’s Rule. * Calculate special population dosification based on body surface area (BSA) | * Handout * Book Exercise |
| **Day 2** | * IV Flow Rate * Drops per minutes * Milliliter per hours * Medication Percentage and ratio Strength | * Interpretation of medication in percentage and ratio strength. * Interpret orders for volume of intravenous medication. * Calculate IV flow rate in drops per minute (gtts/min) and time to infuse an ordered volume of IV fluid (ml/hr.) | * Handout * Book Exercise |
| **Day 3** | * Dilutions * Allegations * Serial * Percentage Proportions | * Dilute stock medication to required strength using allegations, proportions and percentage and serial dilution | * Handout * Book Exercise |
| **Day 4** | * Weight based dose calculation (mg/kg/day) | * Calculate total dosage of medication when quantity is unknown. * Calculate number of doses in a prescription for enteral and parenteral medication | * Handout * Book Exercise |
| **Week 4** |  |  |  |
| **Day 1** | * Calculate overhead expenses for a specified period of time including calculating annual depreciation. | * Overhead is actual cost of doing business. * Gross profit less the overhead equals net profit. * Depreciation is decrease in value of an asset. * Depreciation is based on original cost, age, and expected life. * Annual depreciation is cost divided by expected life. | * Handout * Book Exercise |
| **Day 2** | * Markup of Prescriptions | * Markup is also known as gross margin * Formula: * Markup percentage is also called gross margin percentage. * Formula: | * Handout * Book Exercise |
| **Day 3** | * Discounts | * Discount: percentage reduction in selling price used as incentive to buyer * Always based on selling price, not on cost of item * Formulas: | * Handout * Book Exercise |
| **Day 4** | * Gross Profit * Net Income | * Gross profit is the difference between the sale price and the cost of the inventory, with no other expenses of the business considered. * Formula: * Net income sometimes is called bottom line or net profit * Equals gross profit less inventory and overhead | * Handout * Book Exercise |

**Qualitative Measure of Satisfactory Academic Progress (SAP)**

The qualitative element used to communicate Satisfactory Academic progress is the institutions published grading scale. Theory is evaluated after each unit of study. Students must maintain a cumulative theory grade average of at least 70% (C) at the end of each progress report period. Students must make up failed or missed tests and incomplete assignments. Practical skills performances are counted toward course completion. If performance does not meet satisfactory academic requirements, demonstration of the skills must be repeated until a satisfactory level of performance is achieved.

The school’s satisfactory academic progress policies must contain a Pace (quantitative) measure. The policy defines the pace at which our students must progress to ensure educational program completion within the maximum timeframe of 150%. For Florida Vocational Institute the maximum time frame is no longer than 150% of the published length of the educational programs as measured in the cumulative number of clock hours the student is required to complete.

The school uses the following grading scale:

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| **Letter** | **Number** | **Grade Point** |
| **A** | 100 - 90% | 4.0 |
| **B** | 89 - 80% | 3.0 |
| **C** | 79 - 70% | 2.0 |
| **D** | 69 - 60% | 1.0 |
| **F** | Below 60% | 0.0 |
| **I** | Incomplete | Withdraw / No Grade |

*Not Used in GPA computation: I = Incomplete; W = Withdraw; P = Pass; NP = Not Pass*

Pass - Satisfactory completion of non-graded Externship.

Fail - Unsatisfactory completion of non-graded Externship.

The students who have failed to meet the Qualitative standards are placed first on Financial Aid Warning; if no improvement over the next payment period, the student will be placed on academic suspension, with a loss of Title IV, HEA fund and they appeal the decision. Please review the appeal and probation requirements state in this policy for guidance on this process. The Director of Financial Aid in coordination with the Office of Academic Affairs monitors qualitative progress.

**Final grade calculation criteria**

Q= 20 %

CA= 10%

MT= 30%

F= 40%

FG= 100%

**Evaluation Record Code**

Q= Quizzes

CA=Class Activity

MT= Mid Term

F= Final

R= Retest

FG= Final Grade

**Attendance**

Regular attendance is required of all students. Promptness and dependability are qualities important in all occupations. Students should begin to develop these qualities and habits the day the students begin their training.

Attendance is taken daily in class by the instructor and submitted to the Registrar before the end of each class day. Students are expected to attend all scheduled class meetings and to arrive on time.  Attendance records will be maintained by the Registrar and will be part of the student’s permanent academic record.

Students with chronic absences in excess of 20% of the scheduled hours for a course will receive a failing grade for the course. Early departures and tardies will be calculated in quarter hour increments. A student will be withdrawn from any course or program if he/she does not attend within a 14 consecutive calendar day period (excluding school holidays or breaks, no longer than 5 consecutive days).  All students must complete a 100% of all externship or clinical hours within the assigned grading period.

Students are responsible for making up assignments and work missed as a result of absence at the discretion of the instructor. The instructor may assign additional outside make-up work to be completed for each absence. Students enrolled in clock hour programs will be required to attend make up classes for any missed hours scheduled by the instructor if the student has missed more than **10%** of scheduled hours.  Students enrolled in a clock hour program must attend a minimum of **85 %** of the scheduled program hours in order to graduate.

Attendance is reviewed by the instructors, program directors and the Director of Education on a weekly basis with a focus on those who have been absent for **10%** of the scheduled course hours. Students will be notified by phone, text or e-mail if their attendance is danger of violating attendance requirements.

Students may appeal the school’s actions related to the attendance policy if the absence was due to extenuating or mitigating circumstances, for example illness, military duty, death of a family member, court appearances or jury duty. The student should first discuss the issue with his or her instructor. Appeals must be received within **seven (7)** calendar days of the student being notified of the decision that he or she wishes to appeal.

Students are expected to inform faculty in advance of any pending dates where a student may be absent and should make every effort to attend the alternate class in the morning or evening. Students are only allowed to miss up to 15% of their entire program hours, anything in excess of the 15% needs to be made up and could impact the student final course grade. It is the responsibility of the student to make up work or time missed.

**MAKE –UP HOURS/TIME**

Students enrolled in clock hour programs will be required to attend make up classes for any missed clock hours scheduled if the students has missed more than 15% of scheduled hours.  Students enrolled in a clock hour program must attend a minimum of 85 % of the scheduled program hours in order to graduate. Make-up hours for class must be made up during alternative schedules, including daytime, evening or a Friday schedule. Special circumstances will be managed by the Program Director with approval from Campus Vice President.

If absence at any time during the program exceeds **more than 10%,** the student will be placed on a mandatory prescribed school schedule which may include attending Friday scheduled sessions.

**MAKE-UP CLASS WORK**

Arrangements to make-up assignments, project, test, and homework missed as a result of absence must be made with the approval of the instructor. Make-up work must be completed within ten (10) calendar days after the end of the module

**DRESS CODE**

1. While on campus and in lectures, students must wear uniform and footwear appropriate for the college learning environment. The student should demonstrate appropriate hygiene to avoid offensive odor.
2. In the student laboratory, appropriate clothing must be worn at all designated times as per the specific course syllabus. Close-toed shoes must be worn in the lab at all times.
3. During clinical rotation, the student must adhere to the dress code of the facility to which he/she is assigned. In addition to the facility’s dress code, or if the dress code is optional, the following rules apply:
   1. Students must comply with number 2 above. If the facility requires the student to wear a scrub uniform, it must be school’s uniform. The student is responsible for purchasing the correct scrub uniform. The student must wear their Student ID batch at all times.
   2. Students must not wear clothing made of denim material of any color. (No jeans or JEAN skirts, etc.)
   3. Students must not wear under t-shirts, unless they are of one color with no words, letters, slogans, graphics, etc., of any kind
   4. Students must wear closed-toe shoes (no sandals or canvas shoes) with socks or hosiery.
   5. While attending practicum rotations, student’s hair must be clean, neat and of a normal hair color. Male students must either shave regularly, or if they choose to wear a mustache and/or beard, they must keep them clean and well groomed.
   6. Before attending practicum rotation, students must bathe regularly to avoid offensive odor. In addition, students must refrain from use of cologne/perfume/aftershave lotion, or makeup.
   7. Keep fingernails clean and at a reasonable length.
   8. Students not conforming to the dress code of the facility or the program may be sent home from the practicum site at the preceptor’s or course instructor’s discretion and attendance won’t be granted.

**Cell Phones and Pagers**

No student will be called out of class for a telephone call, except in case of an emergency. It is suggested that family friends be informed of this rule. Phones will not be in used inclass.