1. COURSE PREFIX NUMBER: Chm 111-112  
2. COURSE TITLE: College Chemistry I - II  
3. COREQUISITES: MTH 163 or permission of instructor  
4. RATIONALE: Chemistry 111-112 is an introductory general inorganic chemistry course primarily for students majoring in the sciences or engineering. No previous knowledge of chemistry is assumed, but a working knowledge of algebra is helpful, if not necessary. The principles and processes of chemistry developed in this course provide students with the ability to critically evaluate chemical information, both as scientists and as citizens. The course also provides the background material required in other courses in chemistry, biology, physics and engineering.
5. CONTENT: (Major Headings)  
   a. introduction and basic concepts  
   b. atoms, molecules and ions  
   c. stoichiometry  
   d. thermochemistry  
   e. the elements and the periodic table  
   f. basic concepts of the electronic structure of atoms  
   g. electronic structure and periodicity  
   h. introduction to chemical bonding  
   i. bonding theories and geometries of molecules  
   j. gases - macroscopic properties and kinetic molecular theory  
   k. properties of liquids and solids, phase changes  
   l. solutions - properties and measures of concentration  
   m. reactions in aqueous solution - solubilities, net ionic equations, electrolytes, colligative properties  
   n. chemical kinetics  
   o. chemical equilibrium (general)  
   p. equilibria of acids, bases and salts in aqueous solution  
   q. applications of aqueous equilibria  
   r. chemical thermodynamics - the Second Law and free energy  
   s. electrochemistry  
   t. descriptive chemistry  
6. GENERAL COURSE OBJECTIVES:  
   Upon successful completion of the course, the student will  
   a. know how chemistry is part of their everyday life  
   b. have knowledge of the basic states, properties and makeup of matter  
   c. understand how to make measurements accurately and correctly  
   d. understand the basic principles of chemistry as outlined in the learning objectives.