

Diploma thesis of the student **Kothroulas Ioannis** on:

## **ANTIMICROBIAL SURFACES**

### **ABSTRACT**

The use of antimicrobial surfaces has been rising since they have proven to be quite effective in combating microbial and mainly bacterial infections. The antimicrobial materials and surface structure have attracted the interest of several scientists and there have been considerable efforts in designing. As to their effectiveness and their action mechanism have been studied both metals, such as silver and titanium with oxides and organic materials such as polymers. However, considerable efforts in combination of inorganic and organic materials, which act synergistically to kill germs, to remove the dead debris and to repel the remaining living germs, have also been done. Furthermore, researchers have been studied various methods of surface modification to enhance the antimicrobial activity of surfaces and nanoparticles. These include the physical and chemical modification methods. The first category includes vapor deposition and construction of film layer by layer, while the second includes derivatization and coating of surfaces. Particularly surface coating is particularly studied due to the multiple offered possibilities. The purpose of this work is to present the different materials used in the manufacture of antimicrobial surfaces, their mechanism of action and finally their construction and modification techniques.