In this work the influence of different thermomechanical paths and heat treatments on crystallographic texture through thickness of API 5L X70 pipeline steel has been studied by using X-ray diffraction, electron backscattered diffraction (EBSD) and scanning electron microscope (SEM). The samples were hot rolled at 1000 °C to 44% and 67% reduction and then heat treatment processes such as annealing, water quenching and quench-tempering were done to evaluate microstructure and crystallographic texture changing through thickness. Banded ferrite-pearlite microstructure has shown in as received material, was changed to acicular ferrite, quasi-polygonal ferrite, granular bainite, martensite and retained austenite during different heat treated processes. In rolling, inhomogeneity of texture has often been observed due to friction between rolls and material, in this manner, rolling schedules induced crystalllographic texture dominated by the {112}//ND, {111}//ND, and {011}//ND fibers, which {110}//ND fiber was formed mainly through surface plan but {112}, {111}//ND and {001} <110> texture component were developed in mid plan of samples. As a result, better understanding of these processes is the key to improving and optimizing the structures of both current and future pipeline steels.