ABSTRACT

The Smoking Behavior Mathematical Model in Indonesia That Involves Beginner Smokers and Adult Smokers

By

Nur Endah Ardiyanti

17/418713/PPA/05497

The increasing number of smokers in Indonesia makes the quality of health of the Indonesian population decreases. Not only the number of smokers is increase, but the age of smokers in Indonesia is also getting earlier. These facts encourage the authors to analyze the smoking behavior model in Indonesia by developing a smoking model that already exists. The smoking model that will be developed is a smoking model which divides the human population into three compartments, namely non-smokers, smokers, and ex-smokers, which then each compartment is divided into beginner (teenager) and adult sub-populations, so that the model has six compartments. In this final project the mathematical model will be constructed first, then the stability of the smoker free equilibrium point and the equilibrium point with the existence of the smoker class are investigated. Furthermore, parameter sensitivity analysis is analyzed to obtain information about which factors are most important in controlling the number of smokers in Indonesia.