**EPIDEMIOLOGY: ANALYTICAL AND EXPERIMENTAL APPROACHES CREDIT HOURS 2+1**

**LEARNING OUTCOMES:**

**Students will be able to:**

1. Solve epidemiological issues and suggest solutions for public health
2. Have clear concepts about communicable and non-communicable diseases
3. Guide about Environmental health and health education.

**COURSE CONTENTS:**

Introduction to epidemiology; The historical context; Origins and Recent developments in epidemiology .Definition, scope, and uses of epidemiology; Epidemiology and public health; Causation of disease;Health status of population; Achievements in epidemiology; Measuring health and disease;Defining health and disease; Measuring disease frequency; Population at risk;Incidence and prevalence; Case fatality; Interrelationships of the different measures; Mortality; Life expectancy; Age-standardized rates; Morbidity; Disability; Health determinants, indicators, and risk factors; Comparing disease occurrence; Types of studies; Observations and experiments studies;Descriptive studies;Ecological studies;Cross-sectional studies; Case-control studies; Cohort studies; Randomized controlled trials; Field trials; Community trials; Potential errors in epidemiological studies; Confounding; Validity; Ethical issues; Summarizing data; Different types of tables and graphs. Basic methods and tools of biostatistics and bioinforamatics for assessing epidemiological problems.Epidemiology and prevention: chronic non-communicable diseases; The scope of prevention; Different methods, levels and strategies of prevention and screening; Communicable diseases: epidemiology surveillance and response; Clinical epidemiological related normality and abnormality; Environmental and occupational epidemiology; Environmental health impact assessment; Epidemiology, health policy and planning; steps in practical epidemiology.

**PRACTICALS:**

1. Visits to different hospitals and public health centers.
2. Data analysis by different epidemiological and public health software
3. Problem based solutions of epidemiological diseases

**RECOMMENDED BOOKS:**

1. Beaglehole, R., Bonita, R., & Kjellström, T. 1993. Basic epidemiology. Geneva: World Health Organization
2. Buettner, P., & Muller, R. (2015). Epidemiology. Sydney: Oxford University Press
3. Lawson, A., Banerjee, S., Haining, R. P., & Ugarte, M. D. 2016. Handbook of spatial epidemiology. CRC Press.
4. Magnus, M. 2016. Intermediate epidemiology: Methods that matter. Massachusetts: Jones & Bartlett Learning

Stewart, A. 2016. Basic statistics and epidemiology: A practical guide. Boca Raton : Taylor & Francis