

Vimala College (Autonomous) Thrissur

VALUE ADDED COURSE 2019-2020

A Practical Frame work to Research and Development

Module 1: Research discover and design

(10 Hours)

Overview of Research Process, familiarizing students with a variety of research methods, including survey research, interviewing, participant observation, case studies, comparative analysis, and the use of documentary/primary sources, Conducting a literature review, Constructing Hypotheses, Identifying Variables, Types of Study Designs, Selecting a Method of Data Collection, To organize and describe data and effective display, Ethical Issues in Research, Validity and Reliability in Research, Scientific paper writing. Introduction to Journals and Publishers, Publishing a scientific paper, Peer review process.

Module 2: Instrumental Techniques

(10 Hours)

Chromatographic techniques, Column Chromatography, Paper chromatography, Thin layer chromatography Fourier-transform infrared spectroscopy, UV-Visible Spectroscopy, Photoluminescence Spectroscopy, Optical methods- Polarimeter, Turbidimeter

Module 3: Data Analysis

(10 Hours)

General introduction to Origin Pro for converting data to graphs, Chemdraw for 2D and 3D representation of molecular structure. Research work presentation

Module 4: Practical approach to Chemical analyses

(10 Hours)

Food adulteration, Structural characterization, Separation identification and purification of components by Chromatographic methods