**Instructor story: Kausik Ghosh, Assistant Professor, Geography, Vidyasagar University**

**Implementation plan**

During participation in Faculty Mentoring Network, I proposed the implementation plan for two modules (climate change and stream discharge module). Finally, I have implemented only Climate Change module for the proposed new syllabus in the Department of Geography, Vidyasagar University in India. The existing structure of the syllabus of the department of Geography, VU offers 2 credits (25 marks) each unit, while a paper with 4 credits is divided into two units (2+2 credits). With one of my colleagues in the department, I have proposed to implement the module, climate change in practical paper.

**The course duration**

For at least eight weeks, two classes (approx. one hrs) a week for one semester (preferably first semester).

**Course in brief**

*Hydrometerological techniques*

Understanding climate change, climate change indicators (Co2 concentration, temperature change and precipitation), climate data download from Indian meteorological department (IMD), climate change statistics (time series: trend analysis, regression and correlation, anomalies) and interpretation in regional and global context.

**Climate change module**

Global temperature: correlate CO2 data with global temperature to find out the relationship: Data sources, download, process and presentation

Regional temperature: correlate CO2 data with global temperature to find out the relationship across India: Data sources, access, process and presentation

Climatological anomalies: Temperature and precipitation anomalies in annual, seasonal and monthly scale.

Interpretation: Understanding the climate change based on the interpretation of derived data

Graphing and plotting: learn basic shortcuts, graphing and plotting in Excel with climate data, presentation publication quality.

**The aim of the course**

This course will help students to visualize and answer the question, whether climate change is real or not.

This course will make capable students to connect the regional climate change with the global climatic condition

This course will support student to understand climate variabilities from data analysis, graphing and plotting using Excel.

**Teaching approach**

We will share the data sources to download the data and demonstrate the data analysis using statistical techniques for presentation in graphs and figures. We will help students to learn about the interpretation of the quantitative analysis supporting the graphical presentation and share our past analysis of such data through figures and interpretations.

**Learning objective**

In the final semester students will work on MSc dissertation; hence, the learning methods (understanding the concept of climate change, data downloads and quantitative analysis of the data and further interpretation ability) and analytical skill will help them to write dissertation.

**Assignment and presentation**

Individual student will submit an assignment based on the module learning outcome. Students will select any geographical area (administrative area, urban, rural areas, river basin etc.), download the climate data and use the techniques (trend, linear regression, correlation, R2, anomalies in Excel) they have learned during the class for further interpretation of the data and results. Finally, the results and interpretation of the same will be presented at the end of the class for discussion before the final examination.

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| **Proposed syllabus framework outlined following EDDIE: Faculty Mentoring Network, Dept. of Geography, VU, India** | | | | | |
|  | **I SEM** | **II SEM** | **III SEM** | **IV SEM** | **Marks** |
| Theory | Geotectonics | Geographical thought | Environmental engineering | **MSc. Dissertation** (Internship, exchange, collaborations (national & international), MoU, institutes, universities, Govt., NGOs, Private, Semi-govt. etc.) |  |
| Geomorphology (Based on regional geomorphology) | Population Geography | Energy, water, and food nexus |  |
| Oceanscience | Social & cultural | Regional approach in geography and planning |  |
| Hydrology | Geography of Globalization | Settlement & transport Geography |  |
| Climate Science | Elective | Elective |  |
| Land, Soil and Forest | Elective | Elective |  |
| Environment & Ecology | Special Paper | Special Paper |  |
| Landscape ecology & planning | Special Paper | Special Paper |  |
| Practical | Hydrological techniques | Social thematic mapping | Field work | Special Paper |  |
| **Climate Change** | Basic statistics | Field work (research design) | Special Paper |  |
| Sedimentology | Advanced quantitative methods | Ecosystem services valuation | Proposal writing & research ethics |  |
| Environmental Mapping | RS and Aerial photographs | GIS, Digital cartography, and Geodesy | GIS and modelling |  |

The objective of the syllabus is framed on the following principle:

**1) Structured learning** (where teacher will primarily guide and answer the questions through proportioning further questions, *Theoretical papers*)

**2) Guided learning** (Here, teacher and student will answer the questions from the derived database and other techniques*, Practical and Group Field work*)

**3) Inquiry based learning** (*Student will find his own research question*, formulate objectives, select study area and institutions to conduct research based on previous learning experience from theories and practical papers; the role of teacher will be an evaluator and instructor whenever required). The major objective of this part is to create greater student independence from the teacher and increased openings for better communication multiple institutions, researchers/scientists/activists/officials/NGOs/private/business/industries etc. This problem directed research activities will improve students understanding on the academic/action research and necessary contributions to the filed. Furthermore, interactions with multiple people outside their own institutions will improve their communication skills, opportunities for collaborations and prospective jobs).