

Open Data Curriculum

1. Course Objective

The objective of this course is to build the capacity of the learners to understand the value of and make use of open data. Through this course, participants will learn about open data and its benefits, the technicalities of working with open data, the global open data movement, and the current scenario of and ways to work with open data in Nepal.

2. Learning Outcomes

- ❖ The course will help students to understand the introduction of open data and its concepts.
- ❖ The course will help students to learn about the situation of open data in Nepal, the progress made and challenges of working with data in Nepal.
- ❖ Students will gain knowledge about the open data ecosystem and the right process which they can follow to encourage innovation and reusability of existing data.
- ❖ Students will learn about the basic what and why of open data to some technical process of extracting, filtering, analyzing and visualizing the data.
- ❖ Hands-on training and demo will help the students to be more familiar with different tools which they can use to get started with data.

3. Course Contents

1. Introduction to Open Data

- 1.1. Introduction to data in an information age
- 1.2. Open Definition and Open Data
- 1.3. Importance of open data
- 1.4. Principles for opening up government information
- 1.5. History and Background - Open Data in Nepal
- 1.6. Data revolution in Nepal and the world
- 1.7. Nepal's open data ecosystem

2. Working with Open Data in Nepal

- 2.1. Right to Information Act
- 2.2. Open data law and policies in Nepal
- 2.3. How licensing works

- 2.4. Open data sources of Nepal
 - 2.4.1. Government data sources
 - 2.4.2. INGO data sources
 - 2.4.3. CSO data sources
- 2.5. Open Data stories from Nepal
 - 2.5.1. Government Initiatives
 - 2.5.2. Citizen Engagement
 - 2.5.3. Civil Society Initiatives

3. Process of working with Data

- 3.1. Data Cleaning
 - 3.1.1. Common mistakes made while tabulating data
 - 3.1.2. Elements of clean data
 - 3.1.3. Cleaning process in brief
- 3.2. Data Extraction
 - 3.2.1. Extracting data from PDFs using Tabula software
 - 3.2.2. Making data on the web useful: scraping
 - 3.2.3. Using Python for data extraction
 - 3.2.4. Limits and challenges
- 3.3. Data Analysis
 - 3.3.1. Data structure
 - 3.3.2. Variables
 - 3.3.3. Qualitative analysis
 - 3.3.4. Quantitative analysis
 - 3.3.5. Limits and challenges
- 3.4. Data Visualization
 - 3.4.1. Introduction and importance of data visualization
 - 3.4.2. Multivariate data visualization
 - 3.4.3. Hierarchical data visualization
 - 3.4.4. Visualizing data in basic charts and plots
 - 3.4.5. Free and interactive visualization tools
- 3.5. Publishing Data
 - 3.5.1. Data Portal
 - 3.5.2. Data Journal

- 3.5.3. Open Data licensing
- 3.5.4. Open Data formats
- 3.5.5. Storytelling with data

4. Structure

First Session	Introduction to Open Data – Presentation	
30 minutes	<ul style="list-style-type: none"> ❖ Brief about project and organization ❖ Introduction and importance of open data ❖ History of data in Nepal ❖ Principles and types of data ❖ Data revolution and its value ❖ Open data ecosystem of Nepal 	Instructional Strategies <ul style="list-style-type: none"> ❖ Presentations ❖ Q&A
<p>Outcomes: The goal of the first session is to introduce open data and its concepts to the students. By the end of this session, students will be able to understand the difference between open data and data in general, the correct principles and practices to make data open, and the global scenario of open data and its movement.</p>		

Second Session	Working with Open Data in Nepal	
30 minutes	<ul style="list-style-type: none"> ❖ Situation of Open Data in Nepal - Highlighting the progress made ❖ Overview of different kinds of Open Data Initiative lead by government and CSOs. ❖ Best way to work with data in Nepal ❖ Data sources ❖ Open data law and policies in Nepal ❖ Brief about the open data licensing condition of Nepal ❖ Sharing the contact details of CSOs 	Instructional Strategies <ul style="list-style-type: none"> ❖ Presentation ❖ Demo of existing initiative ❖ Q&A
<p>Outcomes: The goal of the second session is to introduce open data in a localized context, informing the students on the possibilities to work with open data in Nepal. By the end of this session, students will learn about the current position of the government on Open Data, the work and initiatives of</p>		

different organizations with regards to Open Data in Nepal, the law and policies in Nepal that support the open data agenda, and the different sources of data in Nepal.

Third Session	Process of working with Data (Technical)	
30 minutes	<ul style="list-style-type: none"> ❖ Brief overview of the tools and process of working in data <ul style="list-style-type: none"> ➤ Data Extraction ➤ Data Cleaning ➤ Data Analysis ➤ Data Visualization ➤ Publishing Data 	Instructional Strategies <ul style="list-style-type: none"> ❖ Presentation ❖ Hands-on with tools
<p>Outcomes: The goal of the third session is to provide hands on training with some suitable examples to participants so that they can learn about the different tools which can be used while working with data. By the end of the session, the students will have a clear understanding of how to use different online tools to work with data effectively.</p>		

Final Session	Discussion and further planning	
30 minutes	<ul style="list-style-type: none"> ❖ How you can use data in your project, startup, research, campaign, studies to add more values ❖ How you can be the part of ongoing Open Data momentum in Nepal ❖ Right place to share your queries and ideas ❖ Open Data Hackathon 	Instructional Strategies <ul style="list-style-type: none"> ❖ Q&A ❖ Discussion
<p>Outcomes: The aim of the final session is to have some interactive discussion with participants so that we can know more about their interests, ideas and queries. Ideas regarding Open Data Hackathon will be also shared to generate interest amongst participants.</p>		