Specialised Programme on Artificial Intelligence – Spanish
(2 Weeks)

Pre-requisites for the course

- Good knowledge of Python Programming and Basics of Machine Learning

Aim

- ➢ This course aims to present in-depth knowledge and applications in Artificial Intelligence and case studies based on neural networks and deep learning
- ➢ The course includes the implementation of neural components and as well as applying deep learning in real-world data sets using modern deep learning packages
- ➢ Emphasis on the latest AI computing platforms
- ➢ Applications and trends to automate the AI-based application processes
- ➢ An important aim of the course is to learn practical implementation skills along with the above concepts, principles, and methodologies

Objectives

- ➢ Develop an understanding of modern concepts in AI and where they can be used
- ➢ Design, implement and apply novel AI techniques based on emerging real-world requirements
- ➢ Introduce major deep learning algorithms, the problem settings and their applications to solve real-world problems
- ➢ Understanding of fundamental issues and challenges of data science and deep learning data, Model, Selection Complexity
- ➢ Identify the deep learning algorithms which are more appropriate for various types of learning tasks in various domains
- ➢ Implement recurrent neural networks in Python using the PyTorch and TensorFlow libraries and train them with real-world datasets

Course Contents

Fundamental of Artificial Intelligence

Why AI Now? Revolution of AI, Philosophies of CS & Real-world Implications, Revolution & Current Trends in AI, Applications in various Domains, Supervised & Unsupervised Learning, Problem Solving, Types of Search Methodologies, Uninformed Search Algorithms

Deep Neural Network

Introduction to Advanced packages in Python based on deep learning
Neural Network and its applications, Single layer neural Network, Constructing Neural
Networks model, constructing nodes, Creating weight connections between the nodes
Overview of Feed Forward Neural Network, Backpropagation, Activation Functions: Sigmoid,
Hyperbolic Tangent, Training deep neural network, building deep learning models, building a basic neural network using Keras with Tensor Flow

AI Trends and Computing Platforms

Introduction to Version control systems, Creating GitHub repository, Using Git – Introduction to git commands. Introduction to DevOps containers: Advantages of using container-based applications, installing docker and using basic docker commands, Build your container-based application image