SWAYAM Plus+

IITM PRAVARTAK CATALYSING INNOVATION

Course Outline

AI in Physics

Brief about the course

Total number of hours – 45

Notes:

1. Physics topics will be covered briefly followed by applications and case studies
2. Datasets will be used from real world government datasets
3. Regression, Classification and Clustering methods will be primarily used.
4. Image and Voice Recognition models will be used as needed.

Module	Topic Name	Data sets covered
1	Motion, speed, velocity, acceleration related	- Speed Violation data - Vehicle endurance test data - Speed vs fuel efficiency - Accident-related-speed related data
2	Environment	- Air quality Index data - Water pollution data - Impact on pollution - Deforestation Data - Temperature prediction
3	Light and Imaging	- Night lighting in cities and business, - image recognition for quality checks in manufacturing - cancer detection - galactic findings
4	Gases and Liquids	- Flood and terrain data - storm prediction models - rain prediction models
5	Sound	- Noise pollution - Manufacturing plant engine issues - Automobile testing
6	Electrical	- Transformer/transportation losses - Home consumption optimization - Distributed solar grids
7	Electronics	- Microprocessor testing - PCB testing - Data center needs
8	Atomic science	- Reactor production data - Radioactive waste disposal - Fusion modeling

9	Civil	- Urban planning models - Sourcing of material for national scale projects - Policy making based on data
10	Aviation	- Drone statistics for agriculture - Flight delay prediction - Passenger capacity planning

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