



# Summer Training on Machine Learning & Artificial Intelligence

2 Weeks / 4 Weeks / 6 Weeks / 8 Weeks Advance Training on Machine Learning (ML) & Artificial Intelligence (AI).

Venue: Delhi/NCR | Bangalore | Hyderabad |  
Pune | Bhopal | Bhubaneswar | Lucknow

[www.innovianstechnologies.com](http://www.innovianstechnologies.com)

## Company Details

We, **Innovians Technologies (ISO 9001:2015 Certified) (Unit of PRATS Technologies Pvt. Ltd.)**, are the India's fastest growing company in the field of Practical Educational Training, Professional Training, Corporate Training, Web & IT Services, with most advanced technologies & experience in hand. We majorly deal in Educational Workshop and Training, Corporate Training, Motivational Seminar, Software Development, Web Development, Consultancy & Out-sourcing, Placement Assistance.

Innovians Technologies delivers interactive training & workshops which equip its participants with better practical understanding and preparation for jobs in industry. The hands-on sessions and lectures are designed based on current industry trends and draw on the rich experience of instructors and organizers. We focus on Android, Ethical Hacking, Embedded Systems, Robotics, Automation, Web Development, Social Networking, 3D Animation, Automobile Mechanics, Aircraft Designing, Share Market, 2G & 3G Technology and many more.

The Corporate Training programs of Innovians Technologies encompass a wide range of skills that are integral & necessary part of everyday business, daylife or work environment. In our quest to address every organizational development need, Innovians Technologies offer a gamut of training programs, which ranges from Motivational Seminar, Faculty/Staff Development Training, 5S Training, Personality Development, Professional Skills Training & Foreign Languages.

### Our Mission

Innovians Technologies mission is to offer world class, Professional Training & Development Solutions. We strive to offer excellence, professionalism, and a long-term commitment to remain among the premier Training & Development companies in India. Innovians Technologies and its staff are respected for their dedication and contribution to the industry.

### Our Vision

Our values are embraced in the hearts and minds of every Innovians Technologies team member who then embodies these values and shares them throughout our company and with our clients. You will find three core values at work: Relation - We listen, learn, and help selflessly in our interactions with others. Humanity - Through business, we foster a strong sense of corporate social responsibility. Commitment - We honor our commitments and act with responsibility in all our relationships. These values are the building blocks of our work culture.

### Our Team of Professional

Our team, as our imperative asset, works with great zeal to realize the mutual interests of our organization. Our team is made of professionals including professional trainers, managers, consultants, business development staff, quality auditor and other workforces.

Each member in our team is selected on the basis of their domain knowledge in respective fields. To upgrade the expertise of our team we also conduct regular training exercises. It helps us to be paralleled with new changes occurring time after time in the market. Our team members are highly efficient and understand the needs of clients as precisely as possible.

## About Machine Learning & AI

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Machine learning is a core sub-area of artificial intelligence as it enables computers to get into a mode of self-learning without being explicitly programmed. When exposed to new data, computer programs, are enabled to learn, grow, change, and develop by themselves.

Artificial intelligence (AI, also machine intelligence, MI) is intelligence displayed by machines, in contrast with the natural intelligence (NI) displayed by humans and other animals. In computer science AI research is defined as the study of "intelligent agents": any device that perceives its environment and takes actions that maximize its chance of success at some goal.

Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. These processes include learning (the acquisition of information and rules for using the information), reasoning (using the rules to reach approximate or definite conclusions), and self-correction. Particular applications of AI include expert systems, speech recognition and machine vision.

## Topics to be Covered in Summer Training

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### Artificial Intelligence

#### Problem Solving

- Solving Problems by Searching
- Beyond Classical Search
- Adversarial Search
- Constraint Satisfaction Problems

#### Knowledge and Reasoning

- Logical Agents
- First-Order Logic
- Inference in First-Order Logic
- Classical Planning
- Planning and Acting in the Real World
- Knowledge Representation

#### Uncertain Knowledge and Reasoning

- Quantifying Uncertainty
- Probabilistic Reasoning
- Probabilistic Reasoning over Time
- Making Simple Decisions
- Making Complex Decisions

#### Learning

- Learning from Examples
- Knowledge in Learning
- Learning Probabilistic Models
- Reinforcement Learning

## **Machine Learning**

### Introduction and ANN Structure

- Biological neurons and artificial neurons
- Model of an ANN
- Activation functions used in ANNs
- Typical classes of network architectures

### Mathematical Foundations and Learning mechanisms

- Re-visiting vector and matrix algebra
- State-space concepts
- Concepts of optimization
- Error-correction learning
- Memory-based learning
- Hebbian learning
- Competitive learning

### Single layer perceptrons

- Structure and learning of perceptrons
- Pattern classifier – introduction and Bayes & classifiers
- Perceptron as a pattern classifier
- Perceptron convergence
- Limitations of a perceptrons

### Feedforward ANN

- Structures of Multi-layer feedforward networks
- Back propagation algorithm
- Back propagation – training and convergence
- Functional approximation with back propagation
- Practical and design issues of back propagation learning

### Competitive Learning and Self organizing ANN

- General clustering procedures
- Self organizing feature maps
- Properties of feature maps

### Fuzzy Neural Networks

- Neuro-fuzzy systems
- Background of fuzzy sets and logic
- Design of fuzzy stems
- Design of fuzzy ANNs

### MACHINE LEARNING

- Bias – Variance tradeoff

- Regularisation
- Over-fitting
- Support Vector Machines
- Kernel Trick
- PCA and Kernel PCA
- K Means Clustering
- Self-Organization Maps (SOM)
- Kernel induced vector space
- Mercer Kernels and Kernel – induced similarity metrics
- Reinforcement Learning

## DEEP LEARNING

- This will be taught in relation to above topics covered.
- Logistic and Softmax Regression
- Sparse Autoencoders
- Vectorization, PCA and Whitening
- Self-Taught Learning
- Deep Networks
- Linear Decoders
- Convolution and Pooling
- Sparse Coding
- Independent Component Analysis
- Canonical Correlation Analysis
- Demos and Applications

## Applications & Projects using Python Libraries

*A few examples of Neural Network applications, their advantages and problems will be discussed*

- OR Logic, AND Logic & XOR Logic Example using ANN
- Housing Prices Prediction
- Single Line Hypothesis Training
- Share Market Prediction
- Marks Prediction
- Cancer Detection
- Character Recognition using SVM
- Automatic Product Classification & Clustering based on Retail Context
- Predictive Analysis based on Business Housing values
- Using Datasets available on UCI, github and other opensource platforms.

## Course Duration

- 2 Weeks
- 4-8 Weeks (2 Weeks Classroom Training + 2-6 Week Work From Home Project Time). In 4-8 Weeks Training, 2 Weeks will be of Classroom Practical Technical Training same like two week training program & remaining 2-6 Weeks Time Participants will get for completion of a Project/Research Work from home.

## Certificate Policy

- All courses under Summer Training Program (STP) are certified by Innovians Technologies & E-Cell, IIT Roorkee.
- All trainees will receive an Industrial Training Certificate with project completion letter from **E-Cell, IIT Roorkee & Innovians Technologies**.
- Letter of Recommendation cum Internship on company letter head of Innovians Technologies™.

**Please Note:** In-case of 4 -8 Week Training (2 Week Classroom Practical Training + 2 Week Project Work), participants will get 2 Week Classroom Training same like 2 Week Training Program and they will get 2-6 Week Time to complete one project/research work which they can do it from home. Project Work is for those who want to get 4 Week Training Certificate as per their college/university Criteria of Training. Otherwise participants can apply for 2 Week Training Program. Classroom Training is same for 2 Weeks & 4 Weeks Duration Summer Training.

## Eligibility

The pre-requisite for joining this training is zero. Anyone who is interested for this training can register it. Students/faculties from all engineering branches can participate in this training specially participants from **CS/IT Engineering Branches, M.Tech, MCA, BCA, Polytechnic, Diploma etc.**

## Venue

### Registered Center

1. Noida (Delhi/NCR)
2. Bangalore
3. Hyderabad
4. Pune
5. Bhopal
6. Lucknow
7. Bhubaneswar

### Inside College Premises

If a college want to conduct the summer training in their college premises then we can organize it in their college campus itself but there should be minimum of 35 Participants. (For organizing the Summer Training in your college campus, please contact us separately)

## How to Enroll?

- Register yourself at Innovians Technologies™ Internship Website ([www.innovianstechnologies.com/internship](http://www.innovianstechnologies.com/internship)), Register online for any desired course, duration & location of your training course. **Please make payment of Rs 1000 Registration Fee Online in our company bank account for registration through our Partner Gateway using your Debit / Credit Card or Net Banking Facility.** We will send you Confirmation mail regarding your registration. For Payment Options Please visit: [tiny.cc/stppayment3](http://tiny.cc/stppayment3)
- Please deposit your Course fee to Our Online Bank Accounts before the last date and follow [Payment Methods/Options](#) for submitting fee in our account.
- After Direct deposit kindly keep the Bank Receipt with you in original and mail a Scan Copy of that receipt to [stp@innovianstechnologies.com](mailto:stp@innovianstechnologies.com). While transferring funds through NEFT please mail us your details with your account number.
- Ask for Confirmation mail after completing above steps.

## Training Fees & Discounts

- **Total Course Fees: Rs 6999/- (Inclusive of Registration Fees)**  
**Ist Installment: Registration Fee of Rs 1000 to be paid online for confirmation of your seat.**  
**IInd Installment: Rs 5999 Remaining Course Fees to be paid before starting of training.**

### Remaining Course Fees

Rs 5999 /- Per Participant (Excluding Registration Fees)

**Total Course Fees: Rs 7000/-** (Rs 1000 Registration Fees + Rs 6000 Course Fees)

### Discounted Fees for Groups

Rs 6650 Per Participant (3-5 Participant Per Group)    Rs 6300 Per Participant (6-9 Participant Per Group)    Rs 6125 Per Participant (10-19 Participant Per Group)    Rs 5950 Per Participant (20+ Participants Per Group)

### Already having Workshop Certification from Innovians Technologies ?

Get up to 15% discount instantly!!!

### Referral Discount

Refer 10 of your Friends for the Summer Training & Get your Summer Training Course Fees Cost completely waived off .(Only applicable, if they Register for Summer Training).

## Mode of Payment

1. You can make an online payment through our Payment Gateway Partner using your Debit/Credit Card or Net Banking Facility through this link: [Pay Online Now!](#)
2. You can direct deposit/online transfer to our ICICI Bank account. Details are as follows:  
**Account Name:** Innovians Technologies  
**Current Account No:** 158005001300  
**IFSC Code:** ICIC0001580  
ICICI Bank, Sector-62,  
Noida, U.P.
3. GooglePay/ PhonePe / Paytm: **9250904129**
4. UPI ID: **innovians@icici**
5. Kindly make a DD (Demand Draft) of required fee in favour of "Innovians Technologies" payable at Noida. Send DD To:  
Innovians Technologies,  
C-56/11, Sector-62,  
Noida, UP - 2010301 (India).  
(Near Stellar IT Park)

## Contact

We ensure that you will find our training programs extremely beneficial. If you have any queries kindly get back to us.

Regards  
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