

**Skill Enhancement Course  
(SEC)  
Self-Paced Courses**

Provided by

**NASSCOM  
and  
Infosys Springboard**

For  
Undergraduate Students

Subject - Artificial Intelligence  
and Emerging Technologies

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**Dr. Ranjit Kumar Sinha**

Secretary, Higher Education, Uttarakhand

**Prof. Amey Karkare**

Department of Computer Science and Engineering, IIT Kanpur

**Dr. Sruti S. Ragavan**

Department of Computer Science and Engineering, IIT Kanpur

Domain Lead – Economy and Employment, SETU Aayog, Government of Uttarakhand

**Prof. (Dr.) Deepak Kumar Pandey**

Assistant Director & Nodal Officer, NEP-PMU

Department of Higher Education,  
Government of Uttarakhand

**Mr. Lav Bhardwaj**

Domain Lead – Economy and Employment,  
SETU Aayog, Government of Uttarakhand

**Priya Madhavan**

Subject Matter Expert, NASSCOM

**Mr. Anuj Gangola**

Customer Success Lead – Government and Academia

**Ms. Dimple Bhasin**

Senior Analyst, ETA, Infosys Limited

### **Syllabus Drafting Committee**

Convenor Syllabus Drafting Committee Kumaun University, Nainital	Prof. Ashish Mehta
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Govt. Degree College, Rudraprayag	Dr. Pooja Rani

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**Subject: Skill Enhancement Course/Self-Paced Course Provided by NASSCOM and Infosys Springboard for UG students**

<b>Programme/Class:</b> Certificate	<b>Year:</b> 1	<b>Credit :</b> 2
<b>Course Code:</b> SPC 111	<b>Course Title:</b> Cyber-security & Office Tools	<b>Hours:</b> 60

**Course outcomes:**

- Learners will efficiently create, format, analyze, and present professional documents and data using MS Office and Google tools.
- Learners will apply AI tools like Chat-GPT and Copilot for data processing, automation, and enhanced productivity.
- 3- Learners will demonstrate knowledge of cybersecurity threats, data privacy practices, and safe online behavior in professional settings.

**Course Prerequisites:** Nil

**Office Productivity Suite (45 hrs)**  
**Content Provider - Infosys Springboard**

**Unit I: Microsoft Word - Beginners to Beyond**

Introduction to Basic Microsoft Word, getting started with Word, Basic idea of text, Formatting, saving a document, Page Layout, Design Tab, Proofing Document, Printing options, Formatting Paragraphs, exemplifying document, customizing a document, Style & Themes, Tables, Document Structuring Blocks, sharing a document, Reviewing Document, working with a mail merge, Finalising and Protecting document, Assessment

[https://infyspringboard.onwingspan.com/web/en/app/toc/lex\\_auth\\_01384274514015027221935\\_shared/overview](https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01384274514015027221935_shared/overview)

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**Unit II: Power Excel Training & Shortcuts in Microsoft Excel (8 Hrs)**

Power Excel Training: Introduction, Function, Pivot Tables, Evaluate, Date & Time Format, Statement & VLOOKUP, Future Value Function, Business Information, Database Information, Data Comparison & Filter, Pivot Chart and Power View, Assessment.

Shortcuts in Microsoft Excel: Formatting & Navigation, Selection Data & Formula, Assessment

**Power Excel Training**

[https://infyspringboard.onwingspan.com/web/en/app/toc/lex\\_auth\\_01384308885982412830563\\_shared/overview](https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01384308885982412830563_shared/overview)

**Shortcuts in Microsoft Excel**

[https://infyspringboard.onwingspan.com/web/en/app/toc/lex\\_auth\\_01384202114659123210184\\_shared/overview](https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01384202114659123210184_shared/overview)

**Unit III: Chat GPT for Excel & Data Analysis with ChatGPT in Excel**

Chat GPT with Excel: Sum IF, Left, Right, Dated If, Network Days, VLookUp, SumIf, CountIf, Practice, Master Prompts in ChatGPT, ChatGPT Simplified Without Prompt Engineering, ChatGPT Prompts with Excel\_ Formulas, Functions, Conditional Formatting, ChatGPT with Excel Power Query Like Never Before, Understanding Business Analytics and Excel's Role, Data Cleaning Essentials, Data Transformation Techniques, Exploring Descriptive Statistics, Effective Data Visualization, Pivot Tables for Data Exploration, Hypothesis Testing and Confidence Intervals, Correlation and Regression Analysis, Introduction to Time Series Data, Forecasting Techniques in Excel, Creating Data Tables for Scenarios, Sensitivity Analysis and Goal Seeking, Introduction to Power Query, Data Analysis ToolPak, Sales and Marketing Analytics, Financial Analysis and Reporting, Capstone Project and Conclusion, Excel for beginners and

## Excel Masterclass

Data Analysis with ChatGPT in Excel: Intro to the course and quick demo of ChatGPT Advanced Data Analysis, Overview of ChatGPT Advanced Data Analysis, Exploratory Data Analysis with ChatGPT, Process Data with ChatGPT- Deal with Inconsistent Data, organizing messy Data, working with Functions, Clean text Data, Dates & Time Data, Complete Practical Example

### ChatGPT for Excel-Master The Art Of EXCEL With CHATGPT

[https://infyspringboard.onwingspan.com/web/en/app/toc/lex\\_auth\\_014157686397468672161/overview](https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_014157686397468672161/overview)

### Data Analysis with ChatGPT in Excel

[https://infyspringboard.onwingspan.com/web/en/app/toc/lex\\_auth\\_014157688655618048218/overview](https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_014157688655618048218/overview)

## Unit IV: MS Power Point & Copilot for Power Point

Getting Started with Microsoft PowerPoint

Sign up for Microsoft PPT for free, Choose a theme and add slides, Format text and arrange slides

Add content and speaker notes, Finish, save, and share PowerPoint

Copilot for Beginners: Create a Power point Presentation

Create a presentation structure, Apply AI presentation creation and editing skills, Transform a Word document into slides content, Extract insights from other presentations, Demonstrate AI data-to-slides skills , Augment content with AI-researched information, Expand on content, Use pre-built prompts with Copilot Lab, Cumulative activity

### Getting Started with Microsoft PowerPoint

[https://infyspringboard.onwingspan.com/web/en/app/toc/lex\\_auth\\_0142354089093611522736/overview](https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_0142354089093611522736/overview)

### Copilot for Beginners: Create a Power point Presentation

[https://infyspringboard.onwingspan.com/web/en/app/toc/lex\\_auth\\_0142354055452753922766/overview](https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_0142354055452753922766/overview)

## Unit V: MS-900: Microsoft 365 fundamentals

Microsoft 365 Fundamentals

MS 365 Productivity & Teamwork solutions

MS 365 Business Management Capabilities

MS 365 Security and Compliance capabilities

MS 365 Licensing, service & Support

MS 900 Content

[https://infyspringboard.onwingspan.com/web/en/app/toc/lex\\_auth\\_0129598974531584002081\\_shared/overview](https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_0129598974531584002081_shared/overview)

## Unit VI: Google Workspace & Collaborating with G Suite Apps

Google Workspace: Applications of Google Workspace: G-mail, Google Drive Essentials, Google Docs

Collaborating with G Suite Apps: Using G mail's collaborative features, Using Google Forms, Using Google Calendar, Creating and using a shared Google Drive folder, Using shared G-Suits app documents

### Google Workspace

[https://infyspringboard.onwingspan.com/web/en/app/toc/lex\\_auth\\_01415610318706278477/overview](https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01415610318706278477/overview)

### Collaborating with G Suite Apps

[https://infyspringboard.onwingspan.com/web/en/app/toc/lex\\_auth\\_013267703143735296177/overview](https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_013267703143735296177/overview)

Introduction to CyberSecurity (15 hrs)

Content Provider - NASSCOM Future Skills and Cisco

### **Unit VII: Introduction of Cyber-Security**

Introduction to Cyber-Security: The world of Cyber security, Organizational Data, what was taken, Cyber attacks, Cyber Fare.

Attacks, Concept and Technique: Attacks, Concepts & Techniques, Analyzing a cyber attack, methods of infiltration, Security Vulnerability and Exploits, The cyber security landscape

Protecting your Data and Privacy: Protecting your devices and network, data maintenance, who own your data, safeguarding your online privacy, discover your own risky online behaviour

Protecting the Organization: Cyber-security devices and technologies, Behaviour approach to cyber security, Cisco's Approach to cyber-security

Will your future be in Cyber-security: Legal and ethical issues, Education and Careers

<https://www.futureskillsprime.in/course/cisco-netacad-introduction-to-cyber-security/>

Handling Fake News and Spread of Misinformation

<https://www.futureskillsprime.in/pathways/handling-fake-news-and-spread-of-misinformation/>

Reporting Platforms for Unsafe Online Behavior

<https://www.futureskillsprime.in/pathways/reporting-platforms-for-unsafe-online-behavior/>

Personal Data: Risks and Breaches

<https://www.futureskillsprime.in/pathways/personal-data-risks-and-breaches/>

Advanced Measures for Password Security

<https://www.futureskillsprime.in/pathways/advanced-measures-for-password-security/>

Securing Work Devices Properly

<https://www.futureskillsprime.in/pathways/securing-work-devices-properly/>

Preventing Fake News and Spread of Misinformation

<https://www.futureskillsprime.in/pathways/preventing-fake-news-and-spread-of-misinformation/>

Reporting Unsafe Online Behaviour

<https://www.futureskillsprime.in/pathways/reporting-unsafe-online-behaviour/>

Cyberbullying: Legal Consequences

<https://www.futureskillsprime.in/pathways/cyberbullying-legal-consequences/>

Data Encryption

<https://www.futureskillsprime.in/pathways/data-encryption/>

Importance of Data Encryption

<https://www.futureskillsprime.in/pathways/importance-of-data-encryption/>

Data Encryption Techniques

<https://www.futureskillsprime.in/pathways/data-encryption-techniques/>

Safeguarding Personal Information

<https://www.futureskillsprime.in/pathways/safeguarding-personal-information/>

Strategies for Safeguarding Personal Information

<https://www.futureskillsprime.in/pathways/strategies-for-safeguarding-personal-information/>

Understanding Personal Data and Data Protection

<https://www.futureskillsprime.in/pathways/cybersecurity-understanding-personal-data-and-data-protecti/>

Cybersecurity and Social Media

<https://www.futureskillsprime.in/pathways/cybersecurity-and-social-media/>

Deepfake

<https://www.futureskillsprime.in/pathways/deepfake/>

Cyber Kill Chain

<https://www.futureskillsprime.in/pathways/cyber-kill-chain/>

<b>Subject: Skill Enhancement Course/Self-Paced Course Provided by NASSCOM and Infosys Springboard for UG students</b>			
<b>Programme/Class: Certificate</b>	<b>Year: 1<sup>st</sup></b>	<b>Credits : 2</b>	
<b>Course Code: SPC 121</b>	<b>Course Title: Fundamentals of Python for Data Science</b>	<b>Hours : 60</b>	
<b>Course outcomes:</b> <ul style="list-style-type: none"> <li>• Write Python code confidently</li> <li>• Use Python tools effectively</li> <li>• Handle data using Python structures</li> <li>• Apply logic with conditions and loops</li> <li>• Solve problems using functions</li> <li>• Manage files and modules</li> <li>• Debug and handle errors</li> <li>• Use GitHub for version control</li> <li>• Work with data using NumPy &amp; Pandas</li> <li>• Create simple charts</li> <li>• Complete a data project</li> </ul>			
<b>Course Prerequisites: Nil</b>			
Introduction to Python & Setup: What is Python and its applications in Data Science, Why Python for Data Science, Features and advantages of Python, Installing Anaconda and setting up the environment, Understanding Jupyter Notebook and Spyder			
Python Basics - Variables and Operators: Variables & Data Types: Numeric, String, Boolean, Type Casting, Operators: Arithmetic, Assignment, Comparison, Logical			
Python Data Structures: Introduction to Data Structures, Lists and Tuples: Definition, properties, and usage, Sets and Dictionaries: Key-value pairs, operations			
Python Control Flow: Conditional Statements: if, if-else, elif ladder, Nested conditions			
Loops and problem solving: Loops: for, while, Loop control statements: break, continue, pass			
Python Problem solving: Logical problem-solving approach, Algorithmic thinking for Python programs			
Functions in Python: Introduction to Functions, Types of functions: Built-in and user-defined, Scope of variables: Global vs Local, High Order Functions: Lambda, Map, Filter, Reduce			
Modules and file in handling: Introduction to Modules and Packages, Working with built-in modules (e.g., datetime, os), File handling: Reading and writing text files			
Exception handling and debugging: Understanding exceptions and error types, Using try, except, finally			
GitHub Fundamentals and Version Control: Introduction to Git and GitHub, GitHub Desktop Overview, Basic Git commands: in it, add, commit, push, pull			
High-Speed Numerical Computation with NumPy: Introduction to NumPy and its importance in Data Scienc, NumPy Arrays: Creation and Manipulation, Indexing and Slicing in NumPy, Broadcasting and Vectorization			
Working with CSV Files using Pandas: Introduction to Pandas, Reading and writing CSV files.			
Mini Project - Data Visualization: - Introduction to Matplotlib and Seaborn, Basic visualization techniques			
<b>Content Provider – Future Skills NASSCOM</b> <a href="https://www.futureskillsprime.in/iDH/fsp/Catalog/search_text/Fundamentals%20of%20Python%20For%20Data%20Science/order_by/relevance/pageNo/1">https://www.futureskillsprime.in/iDH/fsp/Catalog/search_text/Fundamentals%20of%20Python%20For%20Data%20Science/order_by/relevance/pageNo/1</a>			

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<b>SEC</b>			
<b>Programme/Class: Certificate</b>	<b>Year: 2<sup>ND</sup></b>	<b>Credits : 2</b>	
<b>Course Code: SPC 241</b>	<b>Course Title: Fundaments of Data Analytics</b>	<b>Hours : 60</b>	
<b>Course outcomes:</b> <ul style="list-style-type: none"> <li>• Collection and Classification of Data</li> <li>• Bi-variate analysis</li> <li>• Probability Distribution</li> <li>• Statistical Inference</li> </ul>			
<b>Course Prerequisites: Nil</b>			
<p style="text-align: center;">Module 1: Introduction to Basic Numeric Descriptive Measures</p> <ul style="list-style-type: none"> <li>• Understand the Measures of Central Tendency &amp; Dispersion - Mean, Median, Mode, Variance as well as Standard Deviation Basic Bivariate Statistics - Covariance &amp; Correlation.</li> </ul>			
<p style="text-align: center;">Module 2: Introduction to Probability Distributions and Statistical Inference</p> <ul style="list-style-type: none"> <li>• Develop a strong foundation in Basics Probability Distributions - Significance of Normal Distribution Statistical Inference - Hypothesis Testing.</li> </ul>			
<p style="text-align: center;">Module 3: Frequently Applied Statistical Tests</p> <ul style="list-style-type: none"> <li>• Learn the methods for Statistical Tests for Hypothesis Testing - Z-test, t-test &amp; Chi-Square Test.</li> </ul>			
<p style="text-align: center;"><b>Content Provider – Future Skills NASSCOM</b>  <a href="https://www.futureskillsprime.in/course/fundamentals-of-data-analytics/">https://www.futureskillsprime.in/course/fundamentals-of-data-analytics/</a></p>			

<b>Subject: Skill Enhancement Course/Self-Paced Course Provided by NASSCOM and Infosys Springboard for UG students</b>			
<b>Programme/Class: Certificate</b>	<b>Year: 3<sup>rd</sup></b>	<b>Credits: 2</b>	
<b>Course Code: SPC 351</b>	<b>Course Title: Intro to the world of AI/ML</b>	<b>Hours: 60</b>	
<b>Course Prerequisites: Nil</b>			
<b>Theory</b>			
<ul style="list-style-type: none"> <li>- Introduction to AI and ML</li> <li>- What is Machine Learning?</li> <li>- How is it different from conventional programming?</li> <li>- Why is Machine Learning needed?</li> <li>- Real-world applications of Machine Learning</li> </ul>			
<ul style="list-style-type: none"> <li>- What is Supervised Learning?</li> <li>- Classification and Regression</li> <li>- List of Algorithms under Classification and Regression</li> <li>- Classification Evaluation Metrics: Accuracy, Precision, Recall, F1-score</li> <li>- What is Unsupervised Learning?</li> <li>- Clustering &amp; Dimensionality Reduction</li> </ul>			
<ul style="list-style-type: none"> <li>- Classification Metrics</li> <li>- Confusion Matrix</li> <li>- Precision, Recall, F1-score</li> <li>- ROC Curve and AUC</li> <li>- Regression Metrics</li> <li>- RMSE</li> <li>- MAE</li> <li>- R-squared</li> </ul>			
<ul style="list-style-type: none"> <li>- Understanding different types of data</li> <li>- Numerical Variables (Discrete &amp; Continuous)</li> <li>- Categorical Variables (Nominal &amp; Ordinal) <ul style="list-style-type: none"> <li>- Rescaling Numerical Variables</li> <li>- Standardization</li> <li>- Normalization</li> </ul> </li> <li>- Encoding Categorical Variables <ul style="list-style-type: none"> <li>- One-Hot Encoding</li> <li>- Ordinal Encoding</li> </ul> </li> </ul>			
<ul style="list-style-type: none"> <li>- Understanding the business case study</li> <li>- Defining the problem</li> <li>- Brainstorming a solution</li> <li>- Putting together various pieces</li> </ul>			
<ul style="list-style-type: none"> <li>- Introduction to Digital Images and Pixels</li> <li>- Reading, Displaying, and Saving Images</li> <li>- Image Transformations: Resize, Rotate, Flip, Crop</li> <li>- Image Filtering and Enhancement</li> </ul>			
<ul style="list-style-type: none"> <li>- Image Normalization and Augmentation</li> <li>- Feature Extraction from Images</li> <li>- Image Vectorization Techniques</li> <li>- Implementing Image Classification with ML models</li> </ul>			

<ul style="list-style-type: none"> <li>- Basics of Natural Language Processing (NLP) <ul style="list-style-type: none"> <li>- Text Cleaning and Tokenization <ul style="list-style-type: none"> <li>- Removing Punctuations</li> <li>- Removing HTML</li> <li>- Stopword Removal</li> <li>- Special Character Removal</li> </ul> </li> <li>- Word and Character Tokenization</li> <li>- Stemming and Lemmatization</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>- Need for Text Vectorization</li> <li>- Bag of Words (BOW) Model</li> <li>- Term Frequency-Inverse Document Frequency (TF-IDF)</li> </ul>
<ul style="list-style-type: none"> <li>- Introduction to Clustering Algorithms <ul style="list-style-type: none"> <li>- K-Means Clustering</li> <li>- Hierarchical Clustering</li> </ul> </li> <li>- Introduction to Dimensionality Reduction <ul style="list-style-type: none"> <li>- Principal Component Analysis (PCA)</li> </ul> </li> </ul>
<b><u>Practical</u></b>
Installing and setting up Anaconda, Jupyter Notebook, and Google Colab <ul style="list-style-type: none"> <li>- Running first Python script for data loading and visualization</li> <li>- Introduction to Scikit-learn</li> </ul>
<ul style="list-style-type: none"> <li>- Implementing a simple classification model using Scikit-learn (Iris dataset)</li> <li>- Implementing a regression model using Scikit-learn (Student score dataset)</li> </ul>
<ul style="list-style-type: none"> <li>- Computing and plotting ROC curve for a classification model</li> <li>- Implementing and comparing different regression metrics using Scikit-learn <ul style="list-style-type: none"> <li>- Analyzing model performance with different datasets</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>- Handling missing values using Pandas and Scikit-learn <ul style="list-style-type: none"> <li>- Applying MinMaxScaler to numerical variables</li> <li>- Applying StandardScaler to numerical variables</li> </ul> </li> <li>- Encoding categorical variables using One-Hot Encoding</li> <li>- Encoding categorical variables using Label Encoding</li> </ul>
<ul style="list-style-type: none"> <li>- Cleaning and preparing a real-world dataset <ul style="list-style-type: none"> <li>- Performing EDA to identify trends in data <ul style="list-style-type: none"> <li>- Data Preprocessing</li> </ul> </li> </ul> </li> <li>- Model Training using various Regression Algorithms <ul style="list-style-type: none"> <li>- Evaluation</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>- Loading and displaying an image using PIL</li> <li>- Applying transformations such as rotation, flipping, and resizing</li> <li>- Converting images to grayscale and applying basic filtering</li> </ul>
<ul style="list-style-type: none"> <li>- Implementing image normalization</li> <li>- Extracting image features using image flattening</li> <li>- Training a ML model on vectorized image data</li> </ul>
<ul style="list-style-type: none"> <li>- Tokenizing sentences and words using NLTK</li> <li>- Cleaning text and applying stemming techniques</li> </ul>
<ul style="list-style-type: none"> <li>- Text Preprocessing using NLTK</li> <li>- Converting raw text into BOW representation using Scikit-learn <ul style="list-style-type: none"> <li>- Applying TF-IDF vectorization on a dataset</li> </ul> </li> </ul>

- Training a ML model using vectorized text data

- Implementing K-Means clustering on an unlabeled dataset
  - Visualizing hierarchical clustering dendrograms
- Reducing feature dimensions using PCA and plotting explained variance

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<https://www.futureskillsprime.in/course/an-introduction-to-world-of-ai-with-machine-learning-discover/>