FACULTY DEVELOPMENT PROGRAMME ON DATA ANALYTICS (3-5 APRIL 2019)

Organized by
INTERNAL QUALITY ASSURANCE CELL (IQAC)
LADY IRWIN COLLEGE, UNIVERSITY OF DELHI

PROGRAMME DETAILS

DAY I: 3rd April 2019

Inaugural Session (9.45-10.00am)
Lamp lighting
Welcome address by **Dr. Anupa Siddhu,**
Director, Lady Irwin College, University of Delhi

Session I (10.00-1.00)
Dr. Shashi Dahyia,
Senior Scientist, Division of Computer Applications,
ICAR-IASRI, New Delhi
Topic: Designing databases and online applications with case studies

Lunch (1.00 - 2.00pm)

Session II (2.00-5.00)
Dr. Sudeep Marwaha,
Principal Scientist and Professor, Division of Computer Applications,
ICAR-IASRI, New Delhi
Topic: Artificial Intelligence and Knowledge base systems/ANN

DAY II: 4th April 2019

Session III (10.00am - 1.00pm)
Dr. Anshu Bharadwaj,
Principal Scientist, Division of Computer Applications,
ICAR-IASRI, New Delhi
Topic: Data Mining I - Introduction and Association Rule Mining

Lunch (1.00 - 2.00pm)

Session IV (2.00 - 5.00pm)
Dr. Rajni Jain,
Principal Scientist,
ICAR-National Institute of Agricultural Economics and Policy Research, New Delhi
Topic: Data Mining II - Classification using Decision Tree

DAY III: 5th April 2019

Session V (9.30am - 12.30pm)
Dr. Soumen Pal
Scientist, Division of Computer Applications
ICAR-IASR, New Delhi
Topic: Data Analytics with case studies through R-1 - Introduction to R and R Studio
Data Types and their uses in R; Data import/export in R; R packages; Functions in R; R Charts and Graphs

Lunch (12.30 - 1.30pm)

Session VI (1.30 - 4.30pm)
Dr. Ranjit Kumar Paul
Scientist, Division of Statistical Genetics
ICAR-IASRI, New Delhi
Topic: Data Analytics with case studies through R-2 - Basic statistical analysis
Tests of significance; Correlation and Regression; Time series analysis

Valedictory (4.30-5.00)
Presentation of certificates

Coordinator, IQAC & Faculty Development Programme
Dr. Sushma Goel

Organizing Committee
Dr. Anupa Siddhu
Dr. Simmi Bhagat
Dr. Sheetal Chopra
Dr. Archna Kumar
Dr. Sarita Anand
Dr. Puja Gupta
Dr. Shraddha Kapoor

Brief Resume of Experts

Dr. Shashi Dahiya is a Senior Scientist at ICAR-IASRI, she is Ph.D, Computer Science and Engineering. She is involved in taking up research projects in the area of Knowledge Management Systems, eLearning, Data Mining and Analytics. Being the faculty and research guide in the discipline of computer applications under the PG School IARI, she is teaching the Computer Science courses to masters and doctoral students and guiding them in research as chairman and advisory committee member. She has organized many training programs, workshops and lectures in the areas of Data Mining, eLearning and Knowledge Management Systems.

Dr. Dahiya has published more than 30 research papers and articles in prestigious Indian and International journals of high Impact factor. Chaired and convened sessions and presented invited talks, contributory papers in various National and International conference. She is coordinating projects of high repute. She has many rewards and recognitions for her work.

Anshu (Dixit) Bharadwaj, Principal Scientist at Division of Computer Applications, IASRI. She is Ph.D in Computer Science from JNU. She has eleven years of experience in research, teaching and training in the area of statistics and information and communication technologies. Dr. Bharadwaj has been a faculty member of PG School, IARI teaching masters' and doctoral students, in the discipline of Computer Applications. She has expertise in Statistical Methodologies and Analysis, Data Mining and Machine Learning, Information and Communication Technologies.

She has been co-coordinator of many research projects. More than (50 research publications in national , international journals, book chapters etc.)

Has IT competence in the-
⇨ Operating System : DOS, WINDOWS (95/98/ME/NT/XP).
⇨ Programming Languages : C, VB.
⇨ Scripting Language   : HTML, VB Script
⇨ Database Package   : MS ACCESS, MS SQL
⇨ Statistical/ DATAMINING Packages : SAS- EG, SAS E-MINER, SAS OLAP Studio, SPSS, STATISTICA- DATA MINER, ROSETTA, DTREG, MINITAB, MATLAB, CLEMENTINE, COGNOS (Data Warehousing)
⇨ GIS Software : ArcGIS, ArcGIS Server, QGIS, ENVI

Dr. Rajni Jain obtained the Ph.D. degree in Computer Science from Jawaharlal Nehru University in 2005.The title of her thesis was "Rough set based Decision Tree Induction for Data Mining. Rajni Jain obtained her M.Sc. degree in the discipline of Computer Application from P.G. School, Indian Agricultural Research Institute in 1991 with a gold medal for her outstanding academic performance. Earlier in 1988, Rajni Jain obtained her B.Sc. degree in Physics Hons. From Hansraj College, Delhi University. Rajni joined as Scientist (Computer Applications) in July 1996 at National Institute of Agricultural Economics and Policy Research (NIAP), India and presently working as Principal Scientist there. Besides, Rajni Jain is faculty member in Post Graduate School, ICARIARI for teaching and guiding students of M.Sc. and Ph.D. in Computer Application.

Rajni Jain made important and useful contributions as an agricultural research scientist by developing
methodology for development of optimal crop plans and demonstrating it with the help of case studies of some states; data management framework for survey data of farmers; development of decision support systems; information system design and development; developing and maintaining an online information system of agricultural economists (www.agrieconet.nic.in). Rajni Jain has been managing IT requirements of ICAR-NIAP since 1996. Rajni Jain has organized four 21 days training programmes and many short duration training programmes for the capacity development of National Agricultural Research system. Her research interests include applications of data mining techniques and development of decision support systems for agriculture domain, development of optimum models for crop planning at regional level, total factor productivity in agriculture. Rajni Jain has contributed several research papers in national / international journals / conferences / workshops / seminars. She has more than 80 publications in reputed journals.

Dr. **Soumen Pal is a** Scientist, Division of Computer Applications, ICAR-Indian Agricultural Statistics Research Institute. He is presently **working in the area** of development of web portal, mobile application and statistical modeling which includes designing, code construction, deployment and management of projects.
Teaching of masters' students in the discipline of computer application, operating system, data structures and algorithms, compiler construction, data base management system, computer networking. He is member of advisory committee of 3 Ph.D. and 2 M.Sc. students of PG School IARI. He has delivered many lectures. He has organized training programmes on
1. for Centre of Advanced Faculty Training (CAFT)
    a. Recent Trends in Data Analytics and Knowledge Management
    b. Machine Learning Tools and Techniques for Agricultural Datasets for Knowledge Discovery
2. Networking: Basics and Management" for technical personnel of ICAR
He has been **principal investigator and co-investigator** of several projects.
He has authored about 20 research articles and book chapters and popular articles.

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Dr. Ranjit Kumar Paul, Scientist (Agricultural Statistics), Indian Agricultural Statistics Research Institute (IASRI). He has been a student of IASRI for masters and doctorate (2004-2009). He was recipient of JRF & SRF fellowships along with **merit scholarships** by UBKV as well as **National Scholarship** by Govt. of India. He has been topper throughout & awarded Jawarlal Nehru Gold medal by IASRI and **V. B. R. Murthy Award**" for the best student of the batch `2004-2006, several awards as young scientist from different organizations in international conferences.

He has served Indian Statistical Service, Central Statistical Organization, Ministry of Statistics and Programme Implementations, Government of India
He has served in National Academy of Agricultural Research Management (NAARM), Hyderabad, India, Central Inland Fisheries Research Institute (CIFRI), Kolkata, India, and presently Scientist (Agricultural Statistics), at Indian Agricultural Statistics Research Institute (IASRI).

He is supervisor, co-chairman and member of advisory committee of several M.Sc. and Ph.D students of PG School IARI.

He has more than 200 publications in national & international journals, books, manuals and more than a dozen research projects.
Invited for more than 60 lectures and expert for more than 20 training programmes
Developed softwares on Wavelet long memory, wavelet arima, TSF.

Proceedings of Faculty Development Programme on Data Analytics (3rd -5th April, 2019)
No. of Participants = 57
Session I (10.00am – 1.00pm)
Topic: Designing databases and online applications with case studies
Number of persons attending: 54 participants including faculty and Ph.D Research Scholars

Session presenter: Dr. Shashi Dahiya, Senior Scientist, Division of Computer Applications, ICAR – IASRI, New Delhi
Objectives of Session:
To acquaint the participants about data designing techniques using MS Access

Key points
The FDP was started on 3rd April, 2019 with the Lamp Lightning ceremony followed by the welcome address by Dr. Anupa Siddhu, Director, Lady Irwin College, University of Delhi. The dignitaries were welcomed by Dr. Sushma Goel, Vice Principal, Lady Irwin College, University of Delhi with felicitation of the speaker of the first session Dr. Shashi Dahiya from ICAR, New Delhi.
Dr. Dahiya discussed the use of MS Access as a tool for designing online applications and database management. Microsoft Access is a Database Management System (DBMS) from Microsoft that combines the relational Microsoft Jet Database Engine with a graphical user interface and software development tools. It is a member of the Microsoft Office suite of applications, included in the professional and higher editions.
MSAccess is an information management tool that helps store information for reference, reporting, and analysis. Microsoft Access helps analyze large amounts of information, and manage related data more efficiently than Microsoft Excel or other spreadsheet applications.
Since, many participants had an Apple Laptop, it was highlighted that for MAC users, instead of Microsoft Access, same type of programming can be done using another Database Management System (DBMS) called MySQL.
Dr. Dahiya discussed the process used for entering data into the MS Access and how to read that data using Query. The lecture was very beneficial and provided an insight on DBMS can be used to analyze the huge amount of data being generated every minute. The technical session was followed by lunch.

Session II (1.00-5.00pm)
Date: 3rd April 2019
Area of discussion: Artificial Intelligence and Knowledge Based System/ ANN
Speaker: Dr. Sudeep Marwaha , Principal Scientist and Professor, Division of computer application, ICAR – IASRI, New Delhi.

Key Points
1. Artificial Intelligence is a way of **making a computer, a computer-controlled robot, or a software think intelligently**, in the similar manner the intelligent humans think.
2. **Goals of AI**

- **To Create Expert Systems** − the systems which exhibit intelligent behaviour, learn, demonstrate, explain, and advice its users.
- **To Implement Human Intelligence in Machines** − Creating systems that understand, think, learn, and behave like humans.

3. What Contributes to AI?

Artificial intelligence is a science and technology based on disciplines such as Computer Science, Biology, Psychology, Linguistics, Mathematics, and Engineering. A major thrust of AI is in the development of computer functions associated with human intelligence, such as reasoning, learning, and problem solving.

4. Programming with AI

- A computer program with AI can answer the **generic** questions it is meant to solve.
- AI programs can absorb new modifications by putting highly independent pieces of information together. Hence you can modify even a minute piece of information of program without affecting its structure.

5. AI Technique

In the real world, the knowledge has some unwelcomed properties −

- Its volume is huge, next to unimaginable.
- It is not well-organized or well-formatted.
- It keeps changing constantly.

AI Technique is a manner to organize and use the knowledge efficiently in such a way that −

- It should be perceivable by the people who provide it.
- It should be easily modifiable to correct errors.
- It should be useful in many situations though it is incomplete or inaccurate.

AI techniques elevate the speed of execution of the complex program it is equipped with.

6. Task Classification of AI

The domain of AI is classified into Formal tasks, Mundane tasks, and Expert tasks.

7. Applications of Research Areas

Expert Systems
Flight-tracking systems, Clinical systems.
Natural Language Processing
Google Now feature, speech recognition, Automatic voice output.
Neural Networks
Pattern recognition systems such as face recognition, character recognition, handwriting recognition.
Robotics
Industrial robots for moving, spraying, painting, precision checking, drilling, cleaning, coating, carving, etc.
Fuzzy Logic Systems
Consumer electronics, automobiles, etc.

8. Components of Expert Systems

The components of ES include −

     Knowledge Base
     Inference Engine
     User Interface

9. In case of **knowledge-base**, the Inference Engine acquires and manipulates the knowledge from the knowledge base to arrive at a particular solution.

To recommend a solution, the Inference Engine uses the following strategies −
- Forward Chaining
- Backward Chaining

10. Basic Structure of ANNs

The idea of ANNs is based on the belief that working of human brain by making the right connections, can be imitated using silicon and wires as living **neurons** and **dendrites**.

Examples discussed

Lung cancer. A patient has been suffering from breathlessness. He visits the doctor, suspecting he has lung cancer. The doctor knows that barring lung cancer, there are various other possible diseases the patient might have such as tuberculosis and bronchitis.

- **Gather Relevant Information of Problem**
- **Identify Interesting Variables**
- **Create Arcs between Nodes**

Topology of the network should capture qualitative relationships between variables.

For example, what causes a patient to have lung cancer? - Pollution and smoking. Then add arcs from node *Pollution* and node *Smoker* to node *Lung-Cancer.*

Similarly if patient has lung cancer, then X-ray result will be positive. Then add arcs from node *Lung-Cancer* to node *X-Ray.*

Session III: Data Mining

Date: 4th April'19
Time: 10:00 am-1.00 pm
Resource Person: Dr. Anshu Bharadwaj

The session started with presentation of highlights of the first day by Dr. Sushma Goel, Coordinator, IQAC. Subsequently, Dr. Bharadwaj took over the session and started with the basics and meaning of data mining. Data mining was explained as extracting hidden, previously unknown information for useful purposes. Dr. Sabina Sethi, Associate Professor, Lady Irwin College, shared an example, amalgamating a lot of important aspects of data mining.

Dr. Bharadwaj informed that data mining is very close to statistics. Statistics start with assumptions while data mining does not use any assumptions. Further, she deliberated on the importance of data mining. Firstly, data is being generated at unimaginable speed, secondly, data is heterogeneous and thirdly, stakeholders are not satisfied with simple things.

Dr. Bharadwaj further informed that the data is very subjective and secondly, whenever talking of forecasting, huge data is needed. There are many tasks, application domains of data mining. Task means what can be done with data mining and limits are defined because it involves credibility and accuracy. For each task, data mining has defined techniques to carry that out. It has limited tasks, although it covers all important tasks.

Query was raised by Dr. Deepali Rastogi, Associate Professor, Lady Irwin College, regarding reliability of information from data mining as assumptions are not there. Dr. Bharadwaj replied that statistics gives results with percentage of error however, data mining does not do that. This technique is data dependent. Further, a query was raised with regards to addressing being neutral. Dr. Bharadwaj clarified that being neutral is only a conception and very subjective. Every task has a different way to be carried out.

Dr. Archana Kumar, Associate Professor, Lady Irwin College, asked about fake news being generated based on data, so accuracy of data needs to be known. Dr. Bharadwaj replied that at some point, researchers manipulate the data for good statistical results. Data mining can only give results based on the type of data we give. Query was raised whether the information can be filtered. It was informed that nothing can be filtered once on the browser.

Further, four major tasks of data mining were discussed by Dr. Bharadwaj:

- Classification – categorization of data
- Clustering – grouping of data
- Association rule mining
- Sequential analysis

Data mining has a task of detection of anomaly which is very important in evolution studies. Each task if done using different techniques. Query was raised regarding difference between classification and clustering. It was informed that predictive data mining includes predicting the kind of data to be classified based on some attributes. Descriptive data mining is describing the results. Classification is predictive, while clustering is descriptive.

Broke for tea.

Further, Dr. Bharadwaj informed that when the two groups are knows, predictive technique is used. Thus, classification is supervised learning, while clustering is unsupervised. Training set is a collection of records. Models are built based on class attributes. Model works for the unseen data points and then its class is predicted. Thus, classification is a two-step model – model building and validation. First thing is to split data into two sets: training and test. Validation is a confirmation from the thing which already had the information which is the test set. Further, she deliberated on the different classification techniques.

Question was asked regarding difference between classification and regression. It was clarified that both the techniques predict but in regression, numbers are predicted, while classification is used when it is non-numeric.

Subsequently, Association Rule Mining was discussed, wherein Dr. Bharadwaj started with market-based analysis.

- Association Rule Mining can only be carried out with transactional data. It is not person-specific. It is based on these transactions, that association rules are made.
- Association Rule Mining is one-directional or uni-directional.
- There are more than one item on LHS and RHS.
- Accuracy is an evaluation measure for classification. Similarly, measures of evaluation for Association Rule Mining are support and confidence. Every rule comes with a support and confidence. Support is like probability while confidence is conditional probability.

Goals and key features:

- Completeness – Find all rules.
- No target items on the RHS.
- Mining with data on hard disk (not in memory).
- There are two algorithms working on this – Apriori and FP-Growth (Frequent Pattern Growth).

Further, the process of FD tree construction was discussed with examples. The session was very enriching and enthused the participants.

Session IV: Data Mining : Classification using decision tree
Dr. Rajni Jain, Principal Scientist
Key outcomes of her session are:
1. Use of classification model under data mining
2. How to procure raw data, process the data and converting into structured data.
3. Introduction and hands on practice on WEKA software.
4. Various types of learning algorithms which includes decision tree, machine learning, rules building, artificial neural intelligence.
5. General approach of classification model using training set and test set
6. Discussion on rules based classification models.
7. How to use outlook, under outlook how to use zero R to see the majority, with the data. This is the simplest and bench mark rule.
8. Further classification of one R and decision tree J48 model.
9. Conversion of normal word and excel data files into CSV and ARFF format for easy accessibility in the WEKA software.
10. Discussion on inverted real tree, it modes and interpretation.
11. Decision rule for adapters and non- adapters was learned.
12. Information gain formula, solution of attributes and running of irrelevant data, was discussed and hands on was practised.

SESSION V: Data Analytics through R software
4th April, 2019
Key Points
Dr. Ranjit Kumar Paul commenced the session on data analytics by giving a brief introduction of R software. He explained that R is a statistical software used for analyzing data and constructing programming models is imperative in its use. Before advancing to the practical application of the software, he asked the participants a few questions to gauge their knowledge in programming languages. He added that a number of other softwares are also available for data analytics, however, R is a free software with advanced features.

He began his presentation by explaining the basics of R, its functions and applications. Following key points were highlighted during the seminar:

- R is a programming language for statistical computing and graphics
- R language is widely used among statisticians and data miners for analyzing data
- The software is freely available under the GNU General Public License and pre-compiled binary versions are provided for various operating systems
- It runs on a variety of platforms like Windows, Unix and Mac
- It provides several programming facilities and is equipped with latest statistical techniques
- Different variables have to be taken into consideration to initiate coding on R
- The variables used in the software are case-sensitive
- One of the major advantages of using R is the availability of a 'Help File' that can be accessed to understand the functionality of the software.
- R is command-line based and works on the principle of input-output
- Data types in the form of vectors, matrices, data frames and lists are used for programming

- Attempts have been made to develop Graphic User Interface (GUI) for R like TINN-R, R commander and Rstudio

After the end of his presentation, Dr. Ranjitbegan with the practical application of R. He started teaching the basic commands of addition, subtraction, multiplication and division and progressed to statistical analysis using correlation co-efficient, t-test, regression and hypothesis testing. He further demonstrated how data can be imported from other softwares/files into R for analysis.

During the course of the seminar, Dr. Ranjit along with his associate Dr. Soumen Pal, answered participant queries and clarified several doubts. The session concluded with a heartfelt vote of thanks by Dr. SushmaGoel, Coordinator, IQAC.

DAY III
Session VI: Data Analytics with case studies through R-2 – Basic Statistical Analysis
4th April, 2019
Dr. Soumen Pal,
Scientist, Division of Computer Applications
ICAR-IASRI, New Delhi
&
Dr. Ranjit Kumar Paul
Scientist, Division of Statistical Genetics
ICAR-IASRI, New Delhi

Session VI was in continuation of session V where the software R and R Studio were introduced. The expert discussed its types, uses, data import/export and functions with examples.

R is a free, open-source software and programming language developed in 1995 at the University of Auckland as an environment for statistical computing and graphics. Since then R has become one of the dominant software environments for data analysis and is used by a variety of scientific disciplines, including soil science, ecology, and geo-informatics.

R Studio is an integrated development environment (IDE) that allows you to interact with R more readily. R Studio is considerably more user friendly. It has more drop-down menus, windows with multiple tabs, and many customization options.

Session VI was a practical session where the participants got hands on experience of using these softwares for basic statistical analysis like Tests of Significance, Correlation and Regression, Time Series Analysis etc.

Tests of Significance: Once sample data has been gathered through an observational study or experiment, statistical inference allows analysts to assess evidence in favor or some claim about the population from which the sample has been drawn. The methods of inference used to support or reject claims based on sample data are known as *tests of significance*.

Correlation and Regression are the two analysis based on multivariate distribution. A multivariate distribution is described as a distribution of multiple variables. **Correlation** is described as the analysis which lets us know the association or the absence of the relationship between two variables 'x' and 'y'. On the other end, **Regression** analysis, predicts the value of

the dependent variable based on the known value of the independent variable, assuming that average mathematical relationship between two or more variables.

A **time series** is a series of data points indexed (or listed or graphed) in time order. Most commonly, a time series is a sequence taken at successive equally spaced points in time. **Time series** *analysis* comprises methods for analyzing time series data in order to extract meaningful statistics and other characteristics of the data. **Time series** *forecasting* is the use of a model to predict future values based on previously observed values.

Few of the practical functions discussed during the session were as follows:
- Robust regression which is an alternative to least squares regression when data are contaminated with outliers or influential observations, and it can also be used for the purpose of detecting influential observations.
- Support functions and datasets for Venables and Ripley's Mass
- Predicting the response variable
- Summarizing the output of fitted regression model
- Testing equality of a regression
- Running Chi Square Test for testing goodness of fit

The softwares like SPSS and SAS were prevalent prior to R, as these were clearly better than having to write your own programs. They provided easily repeatable and easy to verify results. However, benefits of R over other statistical softwares were reported as follows:
- Software R may require some programming skills; but, many packages are available that minimize this need.
- R is free, new packages are available as quickly as the theory is published.
- It is now being accepted by a wider audience as a valid alternative to the commercial software.
- It is much bigger and has many options for creating various models.
- It can easily import results from other files.

References suggested for further reading and understanding the software
- Regression Analysis by Draper and Smith
- U Tube videos and online tutorials

FACULTY DEVELOPMENT PROGRAMME ON MOOC (2-4 MAY 2019)

Organized by
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LADY IRWIN COLLEGE, UNIVERSITY OF DELHI

Coordinator, IQAC
Dr. Sushma Goel

Coordinator, Faculty Development Programme on MOOC
Dr. Shraddha Kapoor

Organizing Committee
Dr. Anupa Siddhu
Dr. Simmi Bhagat
Dr. Sheetal Chopra
Dr. Archna Kumar
Dr. Sarita Anand
Dr. Puja Gupta

PROGRAMME DETAILS

Day I: May 12, 2019
Inaugural Session (9.45-10.00am)
Lamp lighting
Welcome address by **Dr. Anupa Siddhu,**
Director, Lady Irwin College, University of Delhi
Guest: Mr. Parameswaran

	Session 1 (9.30 hrs – 11.00 hrs)	Session 2 (11.15 hrs – 1300 hrs)	Session 3 (14.00 hrs – 15.30 hrs)	Session 4 (15.45 hrs – 17.15 hrs)
Day 1	Digital Initiatives of GOI in Higher Education : SWAYAM, SWAYAMPRABAHA, NDL, NAD **Mr. Parameswaran**	Instructional Design for Designing MOOC Courses & Enabling the Blended Learning / Flipped Class Room **Prof K. Srinivas**	Role of Open Educational Resources [OER] & Creative Commons Licensing for Designing Online Courses **[Hands-on Practice]** **Prof K. Srinivas**	Role of Open Educational Resources [OER] & Creative Commons Licensing for Designing Online Courses **[Hands-on Practice]** **Prof K. Srinivas**
Day 2	Video Content Development **[SWAYAM Quadrant-1]** **[Hands-on Practice]** **Prof K. Srinivas**	Video Content Development **[SWAYAM Quadrant-1]** **[Hands-on Practice]** **Prof K. Srinivas**	E-Content [etext] Development **[SWAYAM Quadrant-2]** **[Hands-on Practice]** **Prof K. Srinivas**	Designing MOOC Through MOODLE [Moodle Cloud Registration, Moodle App Installation] **[Hands-on Practice]** **Prof K. Srinivas**
Day 3	Designing MOOC Through MOODLE: Course Announcement , New , Announcements **[Hands-on Practice]** **Prof K. Srinivas**	Designing MOOC Through MOODLE: Uploading the Course Contents etc **[Hands-on Practice]** **Prof K. Srinivas**	Designing MOOC Through MOODLE : Working with Assessments & Discussion Forum **[SWAYAM Quadratnt -3 & 4]** **[Hands-on Practice]** **Prof K. Srinivas**	**Action Plan Presentation By the Participants**

May 4, 2019
Valedictory (4.00-4.30)
Dr. Pankaj Mittal (UGC)
Dr. Anupa Siddhu, (LIC)
Presentation of certificates

Resource Person for the Faculty Development Programme on MOOC
Prof. K. Srinivas, Head of ICT & Project Management unit of National Institute of Educational Planning and Administration (NIEPA), a Deemed to be University under Government of India, Ministry of Human Resource Development (MHRD) Institution in New Delhi. Prof. Srinivas holds a Ph.D. degree in Computer Science and has been utilizing open source ICT tools and technologies in teaching, learning and student evaluation since 1990, both at the graduate and post graduate levels. His areas of interest are e-Learning, blended learning, MOOCs, computer applications in project management, and e-governance. He is having more than 29 years of teaching, research, industry, and consultancy experience.

Number of participants for the Faculty Development Programme on MOOC: 45

Key Points

Instructions for preparations for the Faculty Development Programme
Participants should bring laptops, smart phones and Head Phones/ earphones, as the workshop is based on hands-on activities. Participants were instructed to install all the software required before they come to the workshop. Following preparations were required:
- Software requirements for the hands on sessions

- For e-content development all the participants were requested to come prepared with one lecture on any one topic from one of their courses and bring with them
- Format was provided for preparing course overview
- Resources required for content uploading in an online course
- Teaching in blended / flipped class room
- Developing the video tutorials
- Using open educational resources (OER) for e-content creation

All participants had to work in pre-formed groups. Group work and action plan preparation and presentation are compulsory. The Group work should reflect the collaborative nature. In every session, there were assignments and exercises given which had to be submitted using an online link in the given time duration. The entire three day session was highly intensive, engaging and action packed. It kept the motivation of all participants at the peak and everyone wanted to perform better than the other. Participants performed well on their assignments and group work.

Specific Outcomes of the Workshop
- Sensitizing the digital initiatives of GOI in Higher Education
- Instructional design for MOOC Development & to understand the process of planning, designing and implementing online courses in line with SWAYAM MOOC requirements
- E-content development (script writing/ video recording) with generic video recording and screen capturing tools
- To enable the participants to learn and implement the blended learning and flipped classroom
- To enable participants to learn using FOSS tool Moodle through hands-on-experience
- To train the participants to use Moodle-MOOC as an adjunct to face-to-face teaching and to teach in a fully online or distance learning context and to get a feel for how their courses could be enhanced using Moodle- MOOC platform;
- To create better and active communication and collaboration with the students and to design and manage learning assessment using Moodle MOOC platform
- Exploring OER for learning , teaching and professional development