MCO-03: Research Methodology and Statistical Analysis

The Objective of this course to pay awareness to the most important aspect of Research i.e. Research Methodology. It will enable the Researchers to build up the most suitable methodology for their Research Studies. The mission of the course is to teach research skills to the beginners and assist improve the quality of Research by the existing researchers by and large.

**Prof (Dr) Subodh Kesharwani** is an academician with a bronze medal in his Post Graduate. He is a Doctorate in ERP System in 2002 from Allahabad Central University.  He is one of the researchers who had concentrated his research on **Total Cost of Ownership [TCO] & Critically evaluate ERP vendors including SAP- AG,** . 

Prof (Dr) Kesharwani is presently an Associate Professor, School of Management Studies with a total 20 years of hardcore teaching and research in Information System, Technology Enabled learning and its linkages with various domains of management at Indira Gandhi National Open University, New Delhi

He is presently an expert in various burgeoning areas and had delivered a talk as a trainer on MOOCs, Team Building, E-commerce, Technology Enabled Learning, E-resource, Technology Uses in research, Block chain, Internet of Thing, Enterprise Information System, Free & Open Source Software, etc.

Prof (Dr) Subodh had developed and coordinated a program in Entrepreneurship & Business Skills in collaboration with Rajiv Gandhi Foundation (RGF), India and Commonwealth of Learning, Vancouver, Canada which provides training to the trainers at IGNOU. He is presently a program coordinator of IGNOU-ICWAI alliance too.

Dr. Kesharwani had participated as a debater in diverse TV show and participates in Interactive Radio Counseling including Gyanvani and Gyandasrshan. He had also developed lots of contents for SWAYAM, which is an initiative by Government of India, an instrument for self-actualization providing opportunities for a life-long learning through Massive Open Online Courses (MOOCs).

He had written a Book entitled “Enterprise Information Systems-Contemporary Trends And Issues” in a co-authorship with Prof. David L. Olson (University of Nebraska, USA. which was published by World Scientific, USA. <http://www.worldscibooks.com/business/7287.html> He had another text book on ERP system which caters a B.Tech VI Semester CS and IT Students. He had developed educational contents for various academic institutions such as Institute of Chartered Accountancy, IGNOU and contributed articles for various journals/ Magazines, etc. He had chaired a good number of technical sessions at various conferences & seminars nationally and globally.

He is presently running a “Blockchain Federation for Indian Researcher” which he thinks can bring paradigm shift holistically in society as a whole.

Prof (Dr) Kesharwani had been awarded “IT Innovation & Excellence Award 2012” in the field of ERP solutions, by KRDWG's Selection Committee at IIT Delhi. He is in the panel of the Steering Committee of the International Journal of Computing and e-Systems, TIGERA-USA.  He was in the key panel of round-table workshop conducted by Ministry of Corporate Affairs in Association with Indian Institute of Corporate Affairs to streamline “Corporate Data Management and Governance”.  He was one of the resource person who share the experience with the 12 different ITEC countries participants who had attended International MDP.

### **COURSE LAYOUT**

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| **Weeks** | **Video No.** | **Video Title** | **E-Content** |
| **Week-1** | 1 | Introduction to Business Research | [B-1 /U-1](https://drive.google.com/file/d/1Y82jv3EtV-M70aQOYVLUqOzS3kEf3goB/view?usp=sharing) |
| 2 | Research Thought & FAQ |
| 3 | Research Methods |
| **Week-2** | 4 | Research plan and Research Problem | [B-1 /U-2](https://drive.google.com/file/d/1AH9XLp8cH4Cj27cc1dmqnIz8eIBgEhZB/view?usp=sharing) |
| 5 | Formulation of Objectives |
| 6 | Hypothesis |
| 7 | Research Design |
| 8 | Collection of Data | [B-1 /U-3](https://drive.google.com/file/d/1nGuabAIZtarRIbWWXseGDpNGbMEvod7T/view?usp=sharing) |
| **Week-3** | 9 | Sampling | [B-1 /U-4](https://drive.google.com/file/d/1UTrF7dZr8_2jUHLy-UlaiXypfTpozHzh/view?usp=sharing) |
| 10 | Random Sampling |
| 11 | Non-Random Sampling |
| 12 | Types of sampling Errors & Control |
| **Week-4** | 13 | Measurement of Scaling Techniques (MST)- (Measurement) | [B-1 /U-5](https://drive.google.com/file/d/1lq9WocRYzhErCzyYtDSpTma2aLUK5Szl/view?usp=sharing) |
| 14 | Comparative Scaling Techniques |
| 15 | Non-Comparative Scaling Techniques |
| **Week-5** | 16 | Processing of data | [B-2 /U-6](https://drive.google.com/file/d/14EsxB2iLhI81eQz6PjITVsF8hLBXq41k/view?usp=sharing) |
| 17 | Diagrammatic Presentation of data | [B-2 /U-7](https://drive.google.com/file/d/18wPeNRTp9TRH1hCIlGtZfjxjoUPQtbAJ/view?usp=sharing) |
| 18 | Graphical Presentation |
| **Week-6** | 19 | Statistical Derivatives | [B-2 /U-8](https://drive.google.com/file/d/1prLUUo5GE5Dak0HJFPgtEgetbQFfSsdm/view?usp=sharing) |
| 20 | Measure of Central Tendency (MCT) |
| **Week-7** | 21 | Variance | [B-2 /U-9](https://drive.google.com/file/d/1EdX97Q20p_3zQvugzFYaLGaIaksHvwuI/view?usp=sharing) |
| 22 | Measure of Variance |
| 23 | Measure of Skewness |
| **Week-8** | 24 | Correlation | [B-2 /U-10](https://drive.google.com/file/d/1WzSi91PRscJ-zunH3avX_HgmoiEchpfW/view?usp=sharing) |
| 25 | Scatter Plots |
| 26 | Correlation Coefficient |
| 27 | Regression Analysis |
| 28 | Types of Regression Analysis  (Simple & Multiple) |
| 29 | Correlation Vs. Regression & Standard Error |
| **Week-9** | 30 | Time series Analysis | [B-3 /U-11](https://drive.google.com/file/d/1erf8OdZRuNKK_bn19US3luGNUH98NVxz/view?usp=sharing) |
| 31 | Components of Time Series- |
| 32 | Methods of Measurement of Trends |
| 33 | Index No. | [B-3 /U-12](https://drive.google.com/file/d/1eHMd4erHeMhjMl_dG-twFBgXQ1SQZQ5h/view?usp=sharing) |
| 34 | Construction of Index Numbers and Methods |
| **Week-10** | 35 | Probability | [B-4/U-13](https://drive.google.com/file/d/1y5bQ9g0F_MCNtYjzJrrELCq-NfC_PeQ8/view?usp=sharing) |
| 36 | Fundamental Concepts & approaches to probability |
| 37 | Probability Rules |
| 38 | Probability under Statistical Independence |
| 39 | Probability under Statistical Dependence |
| 40 | Bayes’ Theorem |
| **Week-11** | 41 | Probability Distribution | [B-4/U-14](https://drive.google.com/file/d/1pwHJg_ADpCaqiZ4Q_cttrTGoaejZJvGR/view?usp=sharing) |
| 42 | Types of Probability Distribution- discrete (Part-I) |
| 43 | Types of Probability Distribution-continuous (Part-II) |
| **Week-12** | 44 | Estimation | [B-4/U-15](https://drive.google.com/file/d/1XJOaVKI7W4AtXy0vpknkgpoIZqSRNXh_/view?usp=sharing) |
| 45 | Confidence and intervals |
| 46 | Hypothesis Testing |
| 47 | Theory of Testing Hypothesis |
| **Week-13** | 48 | Type-1 & Type-2 Error | [B-4/U-15](https://drive.google.com/file/d/1XJOaVKI7W4AtXy0vpknkgpoIZqSRNXh_/view?usp=sharing) |
| 49 | One Tailed & Two Tailed Test |
| 50 | Z-Test |
| **Week-14** | 51 | Small Samples Vs. Large Samples | [B-4/U-16](https://drive.google.com/file/d/1SQ2bi-ml3iYgVF6Oaf7mTRXNO75wB8Qp/view?usp=sharing) |
| 52 | Parametric & Nonparametric test |
| 53 | T-Test |
| 54 | Paired t-test |
| 55 | Unpaired t-test |
| 56 | Chi square Test-1 | [B-4/U-17](https://drive.google.com/file/d/1hiVVlazbrdAHmRmpYFeztMYs_VwIdrff/view?usp=sharing) |
| **Week-15** | 57 | Interpretation of Statistical data | [B-5/U-18](https://drive.google.com/file/d/1UNeMpRvXrtoBQ3z3rAbxqFrYBiSQJVSg/view?usp=sharing) |
| 58 | Research Report Writing | [B-5/U-19](https://drive.google.com/file/d/1TpwtKijumzEakV22bD39QeuKt6XjOe95/view?usp=sharing) |
| **Week-16** | 59 | Terminologies Used in Research & Statistics Part-1 A to K | [All Blocks](https://drive.google.com/drive/folders/1J1Vl0PrLnbx3-UkQREVxQUTPVQeOL2f-?usp=sharing) |
| 60 | Terminologies  Used in Statistics & Research  Part-II 1 L to Z | [All Blocks](https://drive.google.com/drive/folders/1J1Vl0PrLnbx3-UkQREVxQUTPVQeOL2f-?usp=sharing) |