



SARDAR VALLABHBHAI NATIONAL INSTITUTE OF TECHNOLOGY, SURAT

No.: D/SEC/ 848 /2019-20

Date: 23/07/2019

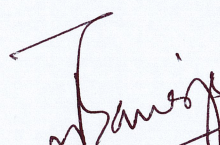
Minutes of the meeting of the *Standing Executive Committee (SEC)* of the Sardar Vallabhbhai National Institute of Technology, Surat held on *Tuesday, the 23rd July 2019, at 11:00 a.m.* onward in the *Institute Conference Room*.

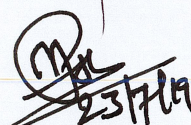
The following members were present in the meeting:

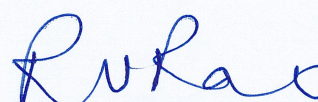
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| 1) Dr. S. R. Gandhi, Director, SVNIT, Surat | : Chairman |
| 2) Dr. Jyotirmay Banerjee, Dean (Academic) SVNIT, Surat | : Member |
| 3) Dr. V. H. Pradhan, Dean (Student Welfare), SVNIT, Surat | : Member |
| 4) Dr. R. Venkata Rao, Dean (Faculty Welfare) SVNIT, Surat | : Member |
| 5) Dr. K. D. Yadav, I/c. Registrar, SVNIT, Surat | : Invitee |
| 6) Dr. Mausumi Mukhopadhyay, Head, CHED, SVNIT, Surat | : Invitee |
| 7) Dr. Shailendra Kumar, Head, MED, SVNIT, Surat | : Invitee |
| 8) Dr. M. A. Zaveri, Head, COED, SVNIT, Surat | : Invitee |
| 9) Dr. A. K. Rai, Head, APD, SVNIT, Surat | : Invitee |
| 10) Dr. A. D. Darji, Head, ECED, SVNIT, Surat | : Invitee |
| 11) Dr. S. M. Yadav, Head, CED, SVNIT, Surat | : Invitee |
| 12) Dr. S. N. Sharma, Head, EED, SVNIT, Surat | : Invitee |
| 13) Dr. B. Z. Dholakiya, Head, ACD, SVNIT, Surat | : Invitee |
| 14) Dr. H. P. Bulsara, Head, AMHD, SVNIT, Surat | : Invitee |

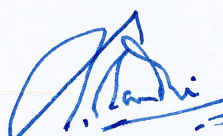
The following item is discussed:

Item: 1	To discuss and finalize the syllabus of "Research Methodology" course offered to PhD students of the institute from the academic year 2019-2020.
Res. 1	The SEC has gone through the contents of the "Research Methodology" course and approved the same. The course, with the code of GN 900, will be offered in both odd and even semesters and is compulsory for all PhD students registered from the academic year 2019-2020.


23/7/19
Dean (Academic)


23/7/19
Dean (Students Welfare)


23.07.19
Dean (Faculty Welfare)


23/7/19
Director

Institute Elective Course

Research Methodology

GN 900

Scheme

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- **Introduction:** Meaning of research; Types of research, Steps involved in research process; Criteria of good research; Research methods versus methodology; Problems encountered by researchers; Ethics in research, importance of ethics, research misconducts, codes and policies for research ethics. **(6 Hours)**
- **Research Problem and Research Design:** Selecting the research problem; Steps involved in defining a research problem (with illustrations); Need for research design; Types of research designs; Basic principles of experimental designs; Informal and formal experimental designs. **(8 Hours)**
- **Sampling Design and Sampling Fundamentals:** Need for sampling; Steps in sampling design; Different types of sample designs; Complex random sampling designs; Important sampling distributions (of mean, proportion, t-, F-, and Chi-square distribution), Central limit theorem; Concept of standard error; Estimating population mean and proportion; Determination of sample size through confidence level and Bayesian statistics. **(8 Hours)**
- **Measurement and Scaling Techniques:** Measurement scales, Sources of error; Tests of measurement (for validity, reliability and practicality); Scaling; Important scaling techniques; Scale construction techniques. **(6 Hours)**
- **Data Collection Methods, Processing and Analysis of Data:** Methods for collection of primary and secondary data; Selection of appropriate data collection method; Collection of data through questionnaires and schedules; Design of questionnaires; Other methods of data collection; Data processing operations; Statistics in research; Measures of central tendency; dispersion, asymmetry; Measures of relationship: Bivariate population-Spearman's and Pearson's coefficients of correlation, simple regression analysis; Multivariate population-coefficient of multiple correlation, multiple regression analysis (with examples); Analysis of Variance (ANOVA)- setting up ANOVA table; one-way and two-way ANOVA; Important methods of factor analysis (centroid method, principal components method, maximum likelihood method). **(12 Hours)**
- **Testing of Hypotheses-I and II:** Basic concepts concerning testing of hypotheses; Important parametric tests (z-, t-, F-, and Chi-square tests); Hypothesis testing-of means, for differences between means, for comparing two related samples, of proportions, for difference between proportions, for comparing a variance to some hypothesized population variance; Hypothesis testing of correlation coefficients; Important nonparametric or distribution-free tests (sign test, Wilcoxon test, rank sum test, Kendall's coefficient, etc.). **(8 Hours)**
- **Statistical Software:** Brief introduction to different commercially available software packages. **(4 Hours)**
- **Interpretation of Results, Report Writing and Presentation:** Meaning of interpretation of results; Steps of interpretation; Significance of report writing; Types of reports; Different steps in report writing; Structure of the research report; Precautions for writing research reports; Oral presentation. **(4 Hours)**

Total contact hours = 56

Books Recommended:

1. C. R. Kothari and G. Garg. Research Methodology: Methods and Techniques, 4th Edition, New Age International, 2019.
2. R. Pannerselvam. Research Methodology, 2nd Edition, PHI Learning, 2014.
3. N. Walliman. Research Methods: The Basics, Routledge, 2011.
4. D. Napoleon and B. B. S. Narayanan. Research Methodology – As Theoretical Approach, Laxmi Publications, 2014.
5. H. S. Asthana and B. Bhushan. Statistics for Social Sciences (With SPSS Applications), 2nd Edition, PHI Learning, 2016.