



# Criterion-1: Curricular Aspects

Key Indicator – 1.3: Curriculum Enrichment

**Metric: 1.3.3**

**Programme: M.Sc. Operational Research**

<b>Syllabus</b>	<a href="https://www.du.ac.in/uploads/RevisedSyllabi1/Annexure-38.%20Master%20of%20Operational%20Research.pdf">https://www.du.ac.in/uploads/RevisedSyllabi1/Annexure-38.%20Master%20of%20Operational%20Research.pdf</a>
<b>List of Students</b>	Annexure-I
<b>Sample Industrial Project Reports</b>	Annexure-II



# Annexure-I

## List of Students

## संक्रिया विज्ञान विभाग

गणितीय विज्ञान संकाय, नया शैक्षणिक खंड

दिल्ली विश्वविद्यालय, दिल्ली-110007

दूरभाष : 27666672, 27667725/एक्स नं. 1333

ईमेल : head@or.du.ac.in

heador1@yahoo.com



DEPARTMENT OF OPERATIONAL RESEARCH

Faculty of Mathematical Sciences

New Academic Block

University of Delhi, Delhi-110007

Phone : 27666672, 27667725/Ext. 1333

E-mail : head@or.du.ac.in

heador1@yahoo.com

फाईल संख्या

Ref. No. : OR/ .....

दिनांक

Dated .....

January 12, 2024

## Data of field projects for the purpose NAAC SSR report Master of Operational Research (MOR) Program

The total number of students who undertook the Industrial Project Work-a mandatory component of MOR program curriculum during 2018 - 2023 :

Academic Session	No. Of Students
2022 - 2023	165
2021 - 2022	167
2020 - 2021	149
2019 - 2020	128
2018 - 2019	126

*Preeti Wanti Srivastava*  
12/01/24

(Preeti Wanti Srivastava)

Sr Professor & Head



# Annexure-II

## Sample Industrial Project Reports



# Certificate

This is to certify that this project entitled **"To construct a project schedule that identifies critical activities and the Time-Cost Trade-Off of the entire project"** is my original work carried out at My Home Infrastructures Private Limited in year 2023, and has been submitted for partial fulfillment of the requirements of the course Master of Operational Research. This project report has not been submitted earlier in full or in part for any other diploma or degree to any other university or institute to the best of my knowledge.

*Anjali Chauhan*

**Anjali Chauhan**  
Master of Operational Research (Semester -IV)  
Department of Operational Research  
University of Delhi  
Delhi - 110007

*Preeti Wanti Srivastava*

**Professor (Dr.) Preeti Wanti Srivastava**  
Head  
Department of Operational Research  
Faculty of Mathematical Sciences  
University of Delhi  
Delhi – 110007

अध्यक्ष/Head  
संक्रिया विज्ञान विभाग  
Department of Operational Research  
दिल्ली विश्वविद्यालय, दिल्ली-110007  
University of Delhi, Delhi-110007

Examination Roll No: 21056761006

# Project Report On

**“To construct a project schedule that identifies critical activities  
and the Time-Cost Trade-Off of the entire project”**

Submitted By  
Anjali Chauhan

In Partial fulfilment of the requirements of the Degree of  
Master of Operational Research

Undertaken at

My Home Infrastructures Private Limited  
Madhapur, Hyderabad ,Telangana



**Department of Operational Research**

Faculty of Mathematical Sciences

New Academic Block

University of Delhi

Delhi-110007

(2023)

**Department of Operational Research**  
Faculty of Mathematical Sciences  
New Academic Block  
University of Delhi  
Delhi – 110007

**Name of the student :** Anjali Chauhan

**Date of commencement of project :** 30th March 2023

**Date of submission of project :** 8 th May 2023

**Title of Project :** To construct a project schedule that identifies critical activities and the Time-Cost Trade-Off of the entire project.

**Name and Address of the Organisation :** My Home Infrastructures Private Limited  
Madhapur ,Hyderabad ,Telangana

**Supervisors from the Teaching Faculty :** Prof. (Dr.) Preeti Wanti Srivastava  
Prof. Chandra Kant Jaggi  
Prof. Prakash C. Jha  
Prof. Pankaj Gupta  
Prof. K. K. Aggarwal  
Prof. Anu Gupta Aggarwal  
Prof. Ompal Singh  
Prof. Mukesh Kumar Mehlawat  
Dr. Aditi Khanna  
Dr. Vandana Khaitan  
Dr. Abhishek Tandon  
Dr. Sameer Anand  
Dr. Shilpi Verma  
Dr. Adarsh Anand  
Dr. Kaushal Kumar  
Dr. Gurjeet Kaur  
Dr. Jagvinder Singh

## CERTIFICATE

This is to certify that this project entitled **“To construct a project schedule that identifies critical activities and the Time-Cost Trade-Off of the entire project”** is my original work carried out at My Home Infrastructures Pvt. Ltd. in the year 2023, and has been submitted for partial fulfillment of the requirements of the course Master of Operational Research. This project report has not been submitted earlier in full or in part for any other diploma or degree to any other University or Institute to the best of my knowledge.

Anjali Chauhan  
Master of Operational Research (Semester IV)  
Department of Operational Research  
University of Delhi  
Delhi -110007

**Prof.(Dr.) Preeti Wanti Srivastava**  
Head  
Department of Operational Research  
Faculty of Mathematical Sciences  
University of Delhi, Delhi-110007

## ACKNOWLEDGEMENT

I would sincerely like to thank all those, who have helped me in successful completion of this project. I would also like to express my sincere gratitude to **Prof.(Dr.)Preeti Wanti Srivastava (H.O.D Operational Research)** for providing me with a golden opportunity to do a project under her valuable supervision and guidance. Without her assistance, I would not have been able to complete my project successfully.

I would also like to pay my sincere regards to our benevolent Professors **Prof. (Dr.) Chandra K. Jaggi, Prof. (Dr.) Pankaj Gupta, Prof. (Dr.) Preeti Wanti Srivastava, Prof. (Dr.) K. K. Aggarwal, Prof. (Dr.) Anu Gupta Aggarwal, Dr. Ompal Singh, Dr. Vandana Khaitan, Dr. Aditi Khanna, Mr. Kaushal Kumar, Dr. Mukesh Kumar Mehlawat, Dr. Adarsh Anand, Dr. Shilpi Verma, Dr. Sameer Anand, Dr. Jagvinder Singh, Prof. Prakash C. Jha, Dr. Gurjeet Kaur and Dr. Abhishek Tandon** for the comprehensive discussions during the tenure of my project.

I would also like to thank all my classmates for their co-operation and support. I would also like to thank my parents for their kind assistance and silent motivation.

Anjali Chauhan

Master of Operational Research (Semester-IV)

Department of Operational Research

University of Delhi

Delhi-110007



To,  
The Head of Department  
Department of Operational Research  
Faculty of Mathematical Sciences  
University of Delhi  
Delhi -110007

Date :30 March 2023

Subject – Reg. assignment of project

Dear Sir /Ma'am,

This is with reference to your request letter received regarding permission to do a project in our company .

We are pleased to inform you that your request has been accepted and the company hereby gives permission to Anjali Chauhan from Department of Operational Research ,University of Delhi (Ramjas College) to do a project on Scheduling Techniques from 30 March 2023 to 30 April 2023.

I would like to inform you that the project assignment is for academic purpose only .The data will be kept strictly confidential and will be used solely for academic purpose .She will be associated with us until the completion of project and will be provided with all the relevant inputs.

Thanking You

For My Home Infrastructures Pvt. Ltd.

Proprietor

**My Home Infrastructures Pvt. Ltd.**

Regd. Office: H.No. 1-123, 8th Floor, Block - 3, My Home Hub, Madhapur, Hyderabad Telangana - 500 081.  
CIN: U45200TG2007PTC055439 / E-mail: info@myhomeinfrastructures.com / Ph : 040 6639 8686, Fax : 6644 2222



www.myhomeinfrastructures.com

To,

The Head of Department

Department of Operational Research,

Faculty of Mathematical Sciences,

University of Delhi,

New Delhi – 110007

Date: 4<sup>th</sup> May, 2023

Subject: - Regarding the completion of a project to Anjali Chauhan

Dear Sir/Ma'am,

About your letter regarding the curriculum industrial project on applications of Operational Research, I am pleased to inform you that Anjali Chauhan, a student of Master of Operational Research has been successfully completed a project schedule that identifies critical activities and the Time- Cost Trade- Off of the entire project for the company.

With Best Regards,

My Home Infrastructures Pvt. Ltd.

For My Home Infrastructures Pvt. Ltd.

 Proprietor

**My Home Infrastructures Pvt. Ltd.**

Regd. Office: H.No. 1-123, 8th Floor, Block - 3, My Home Hub, Madhapur, Hyderabad Telangana - 500 081.  
CIN: U45200TG2007PTC055439 / E-mail: info@myhomeinfrastructures.com / Ph : 040 6639 6686. Fax : 6644 2222

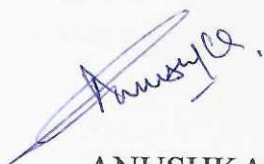
# CONTENT

- 1. Introduction to Operational Research**
- 2. Project Management**
- 3. Network Analysis**
- 4. Resource Analysis in Network Scheduling**
- 5. Lingo**
- 6. Company Profile**
- 7. Project Analysis**
- 8. Conclusions**
- 9. References**
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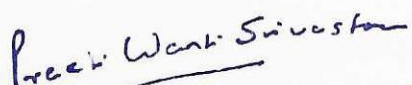


# DECLARATION

This is to certify that this project entitled "GENERAL PERCEPTION AND ATTITUDE OF CUSTOMERS TOWARDS RICE" is my original work carried out at *Trustor Inc* in the year 2023, and has been submitted for partial fulfillment of the requirements of the course Master of Operational Research. This project report has not been submitted earlier in full or in part for any other diploma or degree to any other university or institute to the best of my knowledge.



ANUSHKA GOYAL  
M.Sc. Operational Research (Semester-IV)  
Department of Operational Research  
University of Delhi, Delhi-110007



Professor(Dr.) Preeti Wanti Srivastava  
Head  
Department of Operational Research  
Faculty of Mathematical Sciences  
University of Delhi, Delhi-110007

अध्यक्ष/Head  
संक्रिया विज्ञान विभाग  
Department of Operational Research  
दिल्ली विश्वविद्यालय, दिल्ली-110007  
University of Delhi, Delhi-110007

Project Report  
On  
“GENERAL PERCEPTION AND ATTITUDE OF  
CUSTOMERS TOWARDS RICE”

Undertaken at  
**Trustor Inc**  
Burari road, Swaroop Nagar,  
New Delhi-42

In  
Partial fulfilment of the requirements for the award of the Degree of  
Master of Operational Research

To



Department of Operational Research  
Faculty of Mathematical Sciences  
New Academic Block  
University of Delhi Delhi – 110007  
(2023)

DEPARTMENT OF OPERATIONAL RESEARCH  
FACULTY OF MATHEMATICAL SCIENCES  
NEW ACADEMIC BLOCK  
UNIVERSITY OF DELHI  
DELHI-110007

Name of Student : Anushka Goyal

Date of Commencement of Project : February 13, 2023

Date of Submission of the Project : April 29, 2023

Title of Project : GENERAL PERCEPTION AND ATTITUDE  
OF CUSTOMERS TOWARDS RICE

Project Mentor (Organisation) : Mr. Saumay (Partner)

Supervisors from the teaching faculty : Prof.(Dr.) Preeti Wanti Srivastava  
Prof. Chandra K. Jaggi  
Prof. Prakash C. Jha  
Prof. Pankaj Gupta  
Prof. K.K. Aggarwal  
Prof. Anu Gupta Aggarwal  
Prof. Ompal Singh  
Prof. Mukesh Kumar Mehlawat  
Dr. Aditi Khanna  
Dr. Vandana Khaitan  
Dr. Abhishek Tondon  
Dr. Sameer Anand  
Dr. Shilpi Verma  
Dr. Adarsh Anand  
Dr. Kaushal Kumar  
Dr. Gurjeet Kaur  
Dr. Jagvinder Singh

# DECLARATION

This is to certify that this project entitled “GENERAL PERCEPTION AND ATTITUDE OF CUSTOMERS TOWARDS RICE” is my original work carried out at *Trustor Inc* in the year 2023, and has been submitted for partial fulfillment of the requirements of the course Master of Operational Research. This project report has not been submitted earlier in full or in part for any other diploma or degree to any other university or institute to the best of my knowledge.



ANUSHKA GOYAL  
M.Sc. Operational Research (Semester-IV)  
Department of Operational Research  
University of Delhi, Delhi-110007

Professor (Dr.) Preeti Wanti Srivastava  
Head  
Department of Operational Research  
Faculty of Mathematical Sciences  
University of Delhi, Delhi-110007

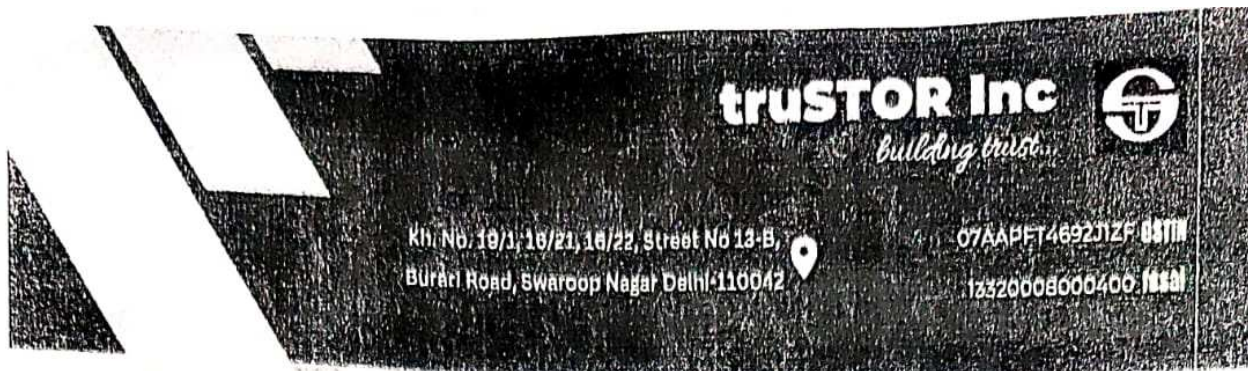
## ACKNOWLEDGEMENT

I express sincere my gratitude to Prof. (Dr.) Preeti Wanti Srivastava(Head of Department of Operational research), for providing me an opportunity to undertake this project under his valuable supervision and guidance. This project would not have been possible without the guidance, cooperation and suggestions in planning and execution of the project of the faculty members of the department. I owe a sense of gratitude to Prof. Chandra K. Jaggi, Prof. Prakash C. Jha, Prof. Pankaj Gupta, Prof. K.K. Aggarwal, Prof. Anu Gupta Aggarwal, Prof. Ompal Singh, Prof. Mukesh Kumar Mehlawat, Dr. Adarsh Anand, Dr. Aditi Khanna, Dr. Vandana Khaitan, Dr. Abhishek Tondon, Dr. Sameer Anand, Dr. Shilpi Verma, Dr. Kaushal Kumar, Dr. Gurjeet Kaur, Dr. Jagvinder Singh for their encouragement and guidance to complete this project.

I would also like to thank all my classmates for their cooperation and support. I would also like to thank M. Phil and PhD scholars for their assistance during the whole project.

Anushka Goyal  
M.Sc. Operational Research (Semester-IV)  
Department of Operational Research  
University of Delhi  
Delhi-110007





Date: February 10, 2023

#### ACCEPTANCE LETTER

The Head of the Department  
Department of Operational Research  
Faculty of Mathematical Sciences  
University of Delhi  
New Delhi – 110007

**Subject: Assignment of Industrial Project to Ms. Anushka Goyal**

Dear Concerned,

This is in regard to the application submitted by Ms. Anushka Goyal for her interest in project work with our firm, we are pleased to inform that she is selected for the same for 2-3 months starting from Feb 13, 2023. She will be assigned the Industrial Project which she will have to complete in the supervision of respective departmental head.

On successful completion of her project work, she will be required to handover the soft copy of her project report to the supervisor to get the clearance and certification of the project. No stipend will be given during the course of this project and the resources provided will be under the terms and policies of our firm.

Yours faithfully,

For Trustor Inc

Partner  
(Saumay Goyal)



DATE: April 29, 2023

### COMPLETION LETTER

The Head of the department  
Department of Operational Research  
Faculty of Mathematical Sciences  
University of Delhi  
New Delhi-110007

#### **Subject: Completion of Industrial Project**

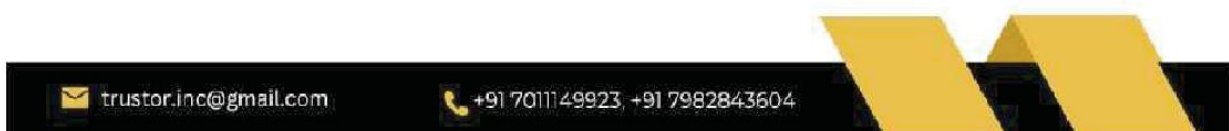
Dear Concerned,

This is to certify that Ms. Anushka Goyal, student of Master of Operational Research, University of Delhi, has successfully completed her Academic Project for TruSTOR Inc. and submitted the project report titled "GENERAL PERCEPTION AND ATTITUDE OF CUSTOMERS TOWARDS RICE"

**Best Regards  
For TruSTOR Inc**

Digitally signed  
by SAUMAY  
GOYAL  
Date: 2023.04.29  
12:31:59 +05'30'

**Partner  
(Saumay Goyal)**



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### DECLARATION

This is to certify that this project entitled "THE STUDY ON CONSUMER BUYING BEHAVIOUR TOWARDS MUTUAL FUNDS" is my original work carried out at SUSHIL FINANCIAL SERVICES PVT. LTD. in the year 2022, and has been submitted for partial fulfillment of the requirements of the course Master of Operational Research. This project report has not been submitted earlier in full or in part for any other diploma or degree to any other university or institute to the best of my knowledge.

*Hemant*  
HEMANT

Master of Operational Research (Semester-IV)

Department of Operational Research

University of Delhi, Delhi-110007

*Preeti Wanti Srivastava*  
Prof. Dr Preeti Wanti Srivastava Head

Department of Operational Research

Faculty of Mathematical Sciences

University of Delhi, Delhi-110007

अध्यक्ष/Head  
संक्रिया विज्ञान विभाग  
Department of Operational Research  
दिल्ली विश्वविद्यालय, दिल्ली-110007  
University of Delhi, Delhi-110007

**Roll No: 21056761008**

**Project Report**

**On**

**“THE STUDY TO CONSUMER BUYING BEHAVIOUR TOWARDS MUTUAL FUNDS IN  
INDIA ”**

**Focusing on**

**SUSHIL FINANCE SERVICES Pvt. Ltd.**

**Submitted By**

**HEMANT**

**In**

**Partial fulfillment of the requirements of the**

**Degree of Master of Science**

**In**

**Operational Research**

**To**

**Department of Operational Research**

**Faculty of Mathematical Sciences**

**New Academic Block**

**University of Delhi**

**Delhi-110007**

**(2021-2023)**

**DEPARTMENT OF OPERATIONAL RESEARCH**  
**FACULTY OF MATHEMATICAL SCIENCES**  
**NEW ACADEMIC BLOCK**  
**UNIVERSITY OF DELHI, DELHI-110007**

**Name of Student** : **HEMANT**

**Date of commencement of Project** : **30<sup>th</sup> April,2023**

**Date of Submission of the Project** : **8<sup>th</sup> May, 2023**

**Title of Project** : **Consumer Buying behavior  
towards Mutual funds**

**Name and Address of the Organization** : **Sushil financial services Pvt Ltd  
405, Panchwati Plaza,  
Kutuchery Road,  
Ranchi (834001)**

**Supervisors from the teaching faculty** : **Prof. (Dr.)Preeti Wanti Srivastava  
Prof. Chandra K. Jaggi  
Prof. Prakash C. Jha  
Prof. Pankaj Gupta  
Prof. K.K. Aggarwal  
Prof. Anu Gupta Aggarwal  
Prof. Dr. Ompal Singh  
Prof. Dr. M.K Mehlawat  
Dr. Aditi Khanna  
Dr. Vandana Khaitan  
Dr. Abhishek Tandon  
Dr. Sameer Anand  
Dr. Shilpi Verma  
Dr. Adarsh Anand  
Dr. Kaushal Kumar  
Dr. Gurjeet Kaur  
Dr.Jagvinder singh**

### **DECLARATION**

This is to certify that this project entitled **“THE STUDY ON CONSUMER BUYING BEHAVIOUR TOWARDS MUTUAL FUNDS”** is my original work carried out at **SUSHIL FINANCIAL SERVICES PVT. LTD.** in the year 2022, and has been submitted for partial fulfillment of the requirements of the course Master of Operational Research. This project report has not been submitted earlier in full or in part for any other diploma or degree to any other university or institute to the best of my knowledge.

**HEMANT**

**Master of Operational Research (Semester-IV)**

**Department of Operational Research**

**University of Delhi, Delhi-110007**

**Prof. Dr Priti Wanti Srivastava Head**

**Department of Operational Research**

**Faculty of Mathematical Sciences**

**University of Delhi, Delhi-110007**

## **ACKNOWLEDGEMENT**

I express my sincere gratitude to the Operational Research Faculty for the timely needful guidance, help, managerial support and co-operation at various levels during the project study and for their inevitable guidance, co-operation and suggestions in planning and execution of the project.

Also I am really thankful to all of my family, friends and colleagues for their ideas and support throughout the project

**HEMANT**

**Master Of Operational Research  
Department of Operational Research  
University of Delhi, Delhi-110007**



***Sushil Financial services Pvt. Ltd***

405, Panchwati plaza, Kutchery Road Ranchi - 834001 E-mail :- jan.14in@gmail.com

The Head of Department  
Department of Operational Research  
Faculty of Mathematical Sciences  
University of Delhi  
Delhi – 110007

Date: 14 Feb 2023

**Subject:** Reg. assignment of project at Sushil Financial Services Pvt. Ltd.

Dear Sir,

This is with reference to your request letter received regarding permission to do a project in our company on topic "The study on Consumer buying behaviour towards Mutual Funds in India."

We are pleased to inform you that your request has been accepted and the company hereby gives permission to Mr. Hemant from Department of Operational Research, University of Delhi (Ramjas College) to do a project on "The study on Consumer buying behaviour towards Mutual Funds in India" from 20<sup>th</sup> Feb 2023 – 30<sup>th</sup> April 2023.

I would like to inform you that the project assignment is for academic purpose only. The data will be kept strictly confidential and will be used solely for academic purpose. He will be associated with us until the completion of the project and will be provided with all the relevant inputs.

Thanking You,

*Proprietor*

(Sushil financial services Pvt. Ltd.)

*(Jyoti prakash)*





**Sushil Financial services Pvt. Ltd**

405, Panchwati plaza, Kutchery Road Ranchi - 834001 E-mail :- jan.14in@gmail.com

The Head of Department  
Department of Operational Research  
Faculty of Mathematical Sciences  
University of Delhi  
Delhi – 110007

Date: 30<sup>th</sup> April 2023

Subject: Completion of Academic Project

Dear Sir,

This is to certify that Mr. Hemant, student of Department of Operational Research, University of Delhi (Ramjas College), has successfully completed his academic project in our company on topic "The study on Consumer buying behaviour towards Mutual Funds in India" Period from 20<sup>th</sup> Feb 2023 – 30<sup>th</sup> April 2023.

Thanking You,

Proprietor

( Sushil financial services Pvt. Ltd. )

( J. Prakash )



# CONTENTS

- Introduction to Operational Research
- Company Profile
- Marketing Research
- Questionnaire Design
- Factor Analysis
- Research Process
- Analysis based on Survey
- Summary



## CERTIFICATE

This is to certify that the project entitled "**PROCESS QUALITY CONTROL**" is my original work carried out at "**Shyam Tex Exports Limited**" in the year 2023, and has been submitted for the partial fulfilment of the course Master of Operational Research (MOR).

The project report has not been submitted earlier or in full or in part for any other diploma or degree to any other University or Institute to the best of my knowledge.

*Himanshi*

Himanshi Parashar

Master of Operational Research

Semester-IV

Department of Operational Research

Faculty of Mathematical Sciences

University of Delhi

Delhi-110007

*Preeti Wanti Srivastava*  
Prof. (Dr.) Preeti Wanti Srivastava

Head of the Department

Department of Operational Research

Faculty of Mathematical Sciences

University of Delhi

Delhi-110007 अध्यक्ष/Head  
सक्रिया विज्ञान विभाग  
Department of Operational Research  
दिल्ली विश्वविद्यालय, दिल्ली-110007  
University of Delhi, Delhi-110007

# Project Report

Roll No: 21029761002

On

## **“Process Quality Control”**

Submitted in Partial Fulfillment of the requirement of the Degree of  
Master of Operational Research

Undertaken at

Plot No. 38, Sector 58, Shyam Tex Exports Ltd.  
Faridabad, Haryana, India



University Of Delhi

Department of Operational Research

SUBMITTED BY

**HIMANSHI PARASHAR**

Master of Operational Research

Indraprastha College for Women

**DEPARTMENT OF OPERATIONAL RESEARCH**

**FACULTY OF MATHEMATICAL SCIENCES**

**NEW ACADEMIC BLOCK**

**DEPARTMENT OF OPERATIONAL RESEARCH**  
**FACULTY OF MATHEMATICAL SCIENCES**  
**NEW ACADEMIC BLOCK**  
**UNIVERSITY OF DELHI, DELHI-110007**

Name of the Student : **Himanshi Parashar**

Title of the Project : Process Quality Control

Date of Commencement  
of the Project : March 14 , 2023

Date of Submission  
of the Project : May 8 , 2023

Name and Address : Shyam Tex Exports Ltd. Plot No. 38, Sec  
58, Faridabad, Haryana, India

Supervisors from : Prof. (Dr.) Preeti Wanti Srivastava

Teaching faculty : Prof. (Dr.) C.K. Jaggi  
Prof. (Dr.) P.C. Jha  
Prof. (Dr.) Pankaj Gupta  
Prof. (Dr.) K.K. Aggarwal  
Prof. (Dr.) Anu Gupta Aggarwal  
Prof. (Dr.) Ompal Singh  
Prof. (Dr.) Mukesh Kumar Mehlawat  
Dr. Aditi Khanna  
Dr. Vandana Khaitan  
Dr. Abhishek Tandon  
Dr. Sameer Anand  
Dr. Shilpi Verma  
Dr. Adarsh Anand  
Dr. Kaushal Kumar  
Dr. Gurjeet Kaur  
Dr. Jagvinder Singh

Dr. Shilpi Verma

## **CERTIFICATE**

This is to certify that the project entitled “**PROCESS QUALITY CONTROL**” is my original work carried out at “**Shyam Tex Exports Limited**” in the year 2023, and has been submitted for the partial fulfilment of the course Master of Operational Research (MOR).

The project report has not been submitted earlier or in full or in part for any other diploma or degree to any other University or Institute to the best of my knowledge.

Himanshi Parashar

Master of Operational Research

Semester-IV

Department of Operational Research

Faculty of Mathematical Sciences

University of Delhi

Delhi-110007

**Prof. (Dr.) Preeti Wanti Srivastava**

Head of the Department

Department of Operational Research

Faculty of Mathematical Sciences

University of Delhi

Delhi-110007

## **ACKNOWLEDGEMENT**

I would like to thank all those sincerely, who have helped me in successful completion of this project. I would like to express my sincere thanks and appreciation to Prof. (Dr.) Prakash C. Jha for providing us with an opportunity to do the project under his valuable supervision.

Without his assistance, I would not have been able to complete my project successfully.

I express my sincere gratitude to our benevolent Professors Prof. (Dr.) Chandra K. Jaggi, Prof. (Dr.) Pankaj Gupta, Prof. (Dr.) Preeti Wanti Srivastava, Prof. (Dr.) K. K. Aggarwal, Prof. (Dr.) Anu Gupta Aggarwal, Dr. Ompal Singh, Dr. Vandana Khaitan, Mr. Kaushal Kumar, Dr. Mukesh Kumar Mehlawat, Dr. Adarsh Anand. I would also like to thank PhD and M. Phil students for their guidance and co-operation throughout my project. I also would like to thank my family and friends for their kind assistance and silent motivation.

I am grateful to Mr. Kirti Nagar, HR Shyam Tex Exports LTD., without whose help this project would have never materialized.

**Himanshi Parashar**

Master of Operational Research

Semester-IV

Department of Operational Research

Faculty of Mathematical Sciences

University of Delhi,

Delhi-110007

## **PROJECT CONFIRMATION LETTER**

### **SHYAM TEX EXPORTS LIMITED**

**CIN:-U74999DL2004PLC130506**



To,  
The Head Of Department  
Department Of Operational Research  
Faculty Of Mathematical Sciences,  
University Of Delhi  
New Delhi-110007

Date: 27 March 2023

**Subject: Assignment Of Project to Himanshi Parashar**

Dear Sir/Mam,

In reference to your letter, I am pleased to inform you that Ms. Himanshi Parashar, a final year student of master Of Operational Research, has been allowed to carry out a project at Shyam Tex Exports Ltd.

I would like to inform you that no stipend will be provided during the course of this project and the resources provided will be under the terms and conditions of our organization.

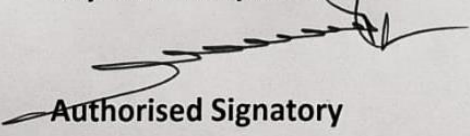
We will look forward to the report and recommendations that will be generated from the study. We wish the student all the best for her research.

Best Regards,

Name of the authority K. P. Nagar

Designation Manager HR & Admin.

**Shyam Tex Exports Ltd.**

  
**Authorised Signatory**

---

**Works :** Plot No. 38, Sector-58, Faridabad - 121004, Haryana (India) **Tel. :** +91-129-4284800-819 **Fax :** +91-129-4284820  
**R.O. :** Unit No. 111, Block No. 1, 1st Floor, Tribhuvan Complex, Ishwar Nagar, Delhi - 110065  
**Tel. :** +91-011-26935829 **Fax :** +91-011-26935830, **E-mail :** info@shyamtex.com **Website :-** www.shyamtex.com  
**GSTIN :** 06AAJCS6588D1Z0

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## **ABSTRACT**

In this study, we make use of DMAIC Six-Sigma Model to improve the quality of process of making T SHIRTS. Manufacturing sector is instrumental in driving economic growth of a country.

Several steps have been taken in the past few years to strengthen the manufacturing capabilities in the country. Besides strengthening the logistic and supply chain infrastructure there is a need to build on the global quality standards and innovation culture for right positioning of Indian produce in the global supply chains.

This study discusses the implementation of a Six Sigma quality improvement project in an Indian MSME organization involved in the production of rubber hoses with an aim to reduce the repairs and rejections. We also illustrate an effective multi-criteria defect prioritization analysis based on AHP methodology to identify the key defects to prioritize the improvement efforts. This method prioritizes the key defect considering various other attributes such as critical to customers rather than only the frequency of defects.

The study also illustrates application of several quality management techniques such as cause and effect analysis, SIPOC analysis and quality control charts in the DMAIC stages.



# SHYAM TEX EXPORTS LIMITED

CIN:-U74999DL2004PLC130506



**Dated:** 12<sup>th</sup> May -2023

To,

The Head of Department,

Department of Operational Research,

Faculty of Mathematical Sciences,

University of Delhi,

New Delhi-110007

**Subject:** Completion of project by Ms. Himanshi Parashar at Shyam Tex Exports Limited

Respected Madam,

I am pleased to inform you that Ms. Himanshi Parashar, a student of Master of Operational Research, University of Delhi, has successfully completed her project in our organisation.

This is to certify the completion of the project and the submission of the same under the title "Process Quality Control: Improving sigma level in the manufacturing process".

Thanking You,

For Shyam Tex Exports Limited

Authorized Signatory

## CERTIFICATE

This is to certify that this project titled "Process Quality Control for Water Proof Mattress Cover" is my original work carried out at Jain Enterprises in the year 2023, and has been submitted for partial fulfilment of the requirements of the course Master of Operational Research. This Project report has not been submitted earlier in full or in part for any other diploma or degree to any other University or Institute to the best of my knowledge.

*Isha*

Isha Jain

Master of Operational Research (Semester – IV)

Department of Operational Research

University of Delhi

Delhi – 110007

*Preeti Wanti Srivastava*

Professor (Dr.) Preeti Wanti Srivastava

Head

Department of Operational Research

Faculty of Mathematical Sciences

University of Delhi, Delhi – 110007

अध्यक्ष/Head

संक्रिया विज्ञान विभाग

Department of Operational Research

दिल्ली विश्वविद्यालय, दिल्ली-110007

University of Delhi, Delhi-110007

**Project Report**  
on  
**Process Quality Control**  
for  
**Water Proof Mattress Cover**  
Submitted in Partial Fulfilment of the Requirement of the Degree  
of  
**Masters of Operational Research**  
*Undertaken at*  
Jain Enterprises, Street No-14 Beadonpura, Karol Bagh, New Delhi- 110005



**University of Delhi**  
**Department of Operational Research**

Submitted by  
**Isha Jain**  
Master of Operational Research  
Ramjas College  
2023

Name of the Student:	Isha Jain
Date of Commencement of the Project:	3 <sup>rd</sup> March, 2023
Date of Submission of the Project:	8 <sup>th</sup> May, 2023
Title of Project:	Process Quality Control for Water Proof Mattress Cover
Name and Address of the Organization:	Jain Enterprises, Street No-14 Beadonpura, Karol Bagh, New Delhi- 110005
Project Mentor (Organization):	Mr. Bupesh Aggarwal
Supervisors from the Teaching Faculty:	Prof. (Dr.) Preeti Wanti Srivastava Prof. Chandra Kant Jaggi Prof. P.C. Jha Prof. Pankaj Gupta Prof. K.K. Aggarwal Prof. Anu Gupta Aggarwal Prof. Ompal Singh Prof. Mukesh Kumar Mehlawat Dr. Aditi Khanna Dr. Vandana Khaitan Dr. Abhishek Tandon Dr. Sameer Anand Dr. Shilpi Verma Dr. Adarsh Anand Dr. Kaushal Kumar Dr. Gurjeet Kaur Dr. Jagvinder Singh

## CERTIFICATE

This is to certify that this project titled “Process Quality Control for Water Proof Mattress Cover” is my original work carried out at Jain Enterprises in the year 2023, and has been submitted for partial fulfilment of the requirements of the course Master of Operational Research. This Project report has not been submitted earlier in full or in part for any other diploma or degree to any other University or Institute to the best of my knowledge.

**Isha Jain**

Master of Operational Research (Semester – IV)

Department of Operational Research

University of Delhi

Delhi – 110007

**Professor (Dr.) Preeti Wanti Srivastava**

Head

Department of Operational Research

Faculty of Mathematical Sciences

University of Delhi, Delhi – 110007

## ACKNOWLEDGEMENT

I would like to thank all those sincerely, who have helped me in successful completion of this project. I would like to express my sincere thanks and appreciation to Professor (Dr.) Preeti Wanti Srivastava (H.O.D Operational Research) for providing us with an opportunity to do the project under her valuable supervision.

Without her assistance, I would not have been able to complete my project successfully.

I want to pay my sincere gratitude to our benevolent Professors Prof. (Dr.) Pankaj Gupta, Prof. (Dr.) Chandra K. Jaggi, Prof. (Dr.) K.K. Aggarwal, Dr. Shilpi Verma, Dr. Gurjeet Kaur, Prof. (Dr.), Dr. Abhishek Tandon, Prof. (Dr.) P.C Jha, Prof. (Dr.) (Mrs.) Anu Gupta Aggarwal, Dr. Ompal Singh, Dr. Mukesh Kumar Mehlawat, Dr. Vandana Khaitan, Dr. Adarsh Anand, Dr. Kaushal Kumar, Dr. Sameer Anand and Dr. Jagvinder Singh for the comprehensive discussions during the tenure of my project.

I would also like to thank all my classmates for their co-operation. I also would like to thank my parents for their assistance wherever required.

**Isha Jain**

Master of Operational Research (Semester - IV)

Department of Operational Research

University of Delhi

Delhi – 110007

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# JAIN ENTERPRISES

*Manufacturers and Wholesalers of all quality of PVC Table Covers, PVC Bedsheets, Refrigerator Covers, AC Curtains, Washing Machine Covers, Mattress Covers and many more related items.*

**Address:** 2949-B, Street No 41, Beadon Pura, Karol Bagh, New Delhi-110005

To,  
Head of Department  
Department of Operational Research  
Faculty of Mathematical Sciences, New Academic Block  
University of Delhi, Delhi-110007  
E-mail : [head@or.du.ac.in](mailto:head@or.du.ac.in)

**Date:** March 3, 2023

**Subject :** Regarding Assignment of Project to Ms. Isha Jain

Dear Sir/Ma'am

This is to inform you that Ms. Isha Jain, a final year student at Department of Operational Research(Ramjas College), has been successfully assigned a project on Quality Management domain under our institution.

I would like to inform you that any stipend will not be given during the course of this project and the resources provided will be under the terms and policies of our organization.

Best Regards





# JAIN ENTERPRISES

*Manufacturers and Wholesalers of all quality of PVC Table Covers, PVC Bedsheets, Refrigerator Covers, AC Curtains, Washing Machine Covers, Mattress Covers and many more related items.*

**Address:** 2949-B, Street No 41, Beadon Pura, Karol Bagh, New Delhi-110005

To,

Head of Department

Department of Operational Research

Faculty of Mathematical Sciences, New Academic Block

University of Delhi, Delhi-110007

E-mail : head@or.du.ac.in

Date:6-May-2023

Subject : Regarding completion of academic project

Dear Sir/Ma'am

This is to certify that Ms. Isha Jain, student of Master of Operational Research, University of Delhi, has successfully completed her research project for Jain Enterprises and submitted her project report on "Process Quality control for waterproof mattress cover"


Best Regards

Tarun Jain (Proprieter)



# CERTIFICATE

This is to certify that this project entitled “**Conduct ABC Analysis and Forecast Demand and Suggest Optimum Procurement Policy**” is my original work carried out at **SPENCER INDIA TECHNOLOGIES PRIVATE LIMITED** in the year 2023, and has been submitted for partial fulfilment of the requirements of the course **Master Of Operational Research**. This project report has not been submitted earlier in full or in part for any other diploma or degree to any other university or institute to the best of my knowledge.



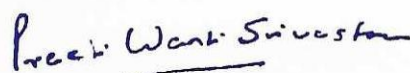
**Jagrit Arora**

**Master Of Operational Research (Semester-IV)**

**Department of Operational Research**

**University of Delhi**

**Delhi-110007**



**Prof. (Dr.) Preeti Wanti Srivastava**

**Head**

**Department of Operational Research**

**Faculty of Mathematical Sciences University of Delhi**

**Delhi-110007**

अध्यक्ष/Head

सक्रिया विज्ञान विभाग

Department of Operational Research

दिल्ली विश्वविद्यालय, दिल्ली-110007

University of Delhi, Delhi-110007

# **A PROJECT REPORT**

To

## **“CONDUCT ABC ANALYSIS AND FORECAST DEMAND AND SUGGEST OPTIMUM PROCUREMENT POLICY ”**

Submitted in partial fulfilment of the requirements for the award of the  
degree of **MASTER OF OPERATIONAL RESEARCH**

**Undertaken at**

**SPENCER INDIA TECHNOLOGIES PRIVATE LIMITED**

Registered Office: Plot No-78A-79A  
UDYOG VIHAR PHASE -V, Gurugram  
Gurugram, Haryana, 122016



**UNIVERSITY OF DELHI  
DEPARTMENT OF OPERATIONAL RESEARCH**

**SUBMITTED BY**

Jagrit Arora  
Master of Operational Research(Semester-4)  
Hansraj College

<b>Name of Student</b>	<b>: Jagrit Arora</b>
<b>Examination Roll No.</b>	<b>: 21025761008</b>
<b>Date of Commencement of Project</b>	<b>: 13<sup>th</sup> February 2023</b>
<b>Date of Submission of Project</b>	<b>: 8<sup>th</sup> May 2023</b>
<b>Title of the Project</b>	<b>: CONDUCT ABC ANALYSIS AND FORECAST DEMAND AND SUGGEST OPTIMUM PROCUREMENT POLICY SPENCER INDIA TECHNOLOGIES PRIVATE LIMITED</b>
<b>Name and Address of the Company</b>	<b>: Registered Office: Plot No-78A-79A UDYOG VIHAR PHASE -V, Gurugram Gurugram, Haryana, 122016</b>
<b>Project Mentor (Organisation)</b>	<b>: Mr. Gurmukh Singh</b>
<b>Supervisors from the Teaching Faculty</b>	<b>: Prof. (Dr.) Preeti Wanti Srivastava Prof. Chandra Kant Jaggi Prof. P.C. Jha Prof. Pankaj Gupta Prof. K.K. Aggarwal Prof. Anu Gupta Aggarwal Prof. Ompal Singh Prof. Mukesh Kumar Mehlawat Dr. Aditi Khanna Dr. Vandana Khaitan Dr. Abhishek Tandon Dr. Sameer Anand Dr. Shilpi Verma Dr. Adarsh Anand Dr. Kaushal Kumar Dr. Gurjeet Kaur Dr. Jagvinder Singh</b>

# ACKNOWLEDGEMENT

I express my sincere gratitude to the faculty members of Department of Operational Research, University of Delhi for their invaluable guidance, support and co-operation at various levels during the project study. It is my pleasure to thank to whom I owe a lot for giving me an opportunity to do my training in **SPENCER INDIA TECHNOLOGIES PRIVATE LIMITED**.

I also owe a special thanks for allowing me to do project under their guidance. the project would not be a success without the constant and valuable guidance of **Dr. C.K. Jaggi** my internal guide for the project, who is rendering all sorts of help as and when required.

**Jagrit Arora**  
**Master Of Operational Research (Semester-IV)**  
**Department of Operational Research**  
**University of Delhi**  
**Delhi-110007**

# CERTIFICATE

This is to certify that this project entitled “**Conduct ABC Analysis and Forecast Demand and Suggest Optimum Procurement Policy**” is my original work carried out at **SPENCER INDIA TECHNOLOGIES PRIVATE LIMITED** in the year 2023, and has been submitted for partial fulfilment of the requirements of the course **Master Of Operational Research**. This project report has not been submitted earlier in full or in part for any other diploma or degree to any other university or institute to the best of my knowledge.

**Jagrit Arora**  
**Master Of Operational Research (Semester-IV)**  
**Department of Operational Research**  
**University of Delhi**  
**Delhi-110007**

**Prof. (Dr.) Preeti Wanti Srivastava**  
**Head**  
**Department of Operational Research**  
**Faculty of Mathematical Sciences University of Delhi**  
**Delhi-110007**

To,  
The Head of Department  
Department of Operational Research  
Faculty of Mathematical Sciences  
University of Delhi  
Delhi – 110007

**Dated:** 13.02.2023

**Subject:** Reg. Assignment of project at Spencer India

Dear Ma'am,

We are pleased to inform you that your request has been accepted and the company hereby gives permission to Mr. Jagrit Arora, Department of Operational Research, University of Delhi (Hansraj College) to do a project work in our organisation for a duration of 3 months.

I would like to inform you that the project assignment is for academic purpose only. The data will be kept strictly confidential and will be used solely for academic purpose. He will be associated with us until the completion of the project and will be provided with all the relevant inputs. He is supposed to submit the project report by April 30<sup>th</sup>, 2023.

Thank you.

Regards,

Authorized Signatory  
For Spencer India Technologies Pvt Ltd  
Manish Malik [malik@spencer-india.com](mailto:malik@spencer-india.com), 9811432544



To,  
The Head of Department  
Department of Operational Research  
Faculty of Mathematical Sciences  
University of Delhi  
Delhi – 110007

**Dated:** 8.05.2023

**Subject:** Completion of project at Spencer India

Dear Ma'am,

This is to certify that Mr. Jagrit Arora, Department of Operational Research, University of Delhi (Hansraj College), has successfully completed his academic project for Spencer India Pvt. Ltd. and has submitted his project work titled "Conduct ABC analysis and forecast demand and suggest optimum procurement policy".

Thank you.

Regards,

Authorized Signatory  
For Spencer India Technologies Pvt Ltd  
Manish Malik [malik@spencer-india.com](mailto:malik@spencer-india.com), 9811432544



# COMPANY PROFILE



Spencer India Technologies Pvt Ltd. is an integral part of Spencer Italia S.r.l; a company based in Italy and leader in the

Emergency care medical equipments, devices and ambulances.

Founded in Year 2006, Spencer India is fast growing company, known for medical equipments for emergency care, ambulances, rescue, disaster management, fire & safety, evacuation, rescue & military etc.



Spencer provides more than 1700 products to handle the situations as below: -

- Patient handling/transportation
- Evacuation, rescue & protection
- Immobilisation & prehospital treatments
- Resuscitation & suction, oxygen therapy
- Diagnostics, training & misc.

Spencer India manufactures and promote Ambulances of all types and products for resuscitation, oxygen equipment, suction units, diagnostics, stretchers and chairs, immobilisation devices, triage tools, water, and mountain rescue equipments, infusion devices, bags and first aid kits, hypothermia and burn treatment, ambulances & all the way to personal accessories and gadgets.



## AIS-125 and 10G certified Stretchers & Fixation Systems



Spencer equipments are used in ambulances, private & govt hospitals, nursing homes, defence, research institutes & centres, corporate houses, rescue & disaster, specialised etc.

Spencer India has supplied emergency care medical equipments for manufacturing & development of thousands of ALS, BLS & PTV ambulances in India with advanced equipments on board.

Spencer operates in various states through its exclusive distributors and channel partners in India.

Spencer also provides “Free of Cost” training to paramedics all over India and executing projects on emergency in Schools/ airports/ safety programme in corporate organisations and industries.

## Project Title

**“Conduct ABC Analysis and Forecast Demand  
and Suggest Optimum Procurement Policy”**

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## **CERTIFICATE**

This is to certify that this project entitled **“To conduct an ABC analysis and to forecast the demand for spare items and plan the inventory”** is my original work carried out in the year 2023, and has been submitted for partial fulfilment of the course Master of Operational Research. This project report has not been submitted earlier in full or in part for any other diploma or degree to any other University or Institute to the best of my knowledge.

*Kajal.*

Kajal  
Master of Operational Research (Semester - IV)  
Department of Operational Research University of Delhi  
Delhi – 110007

*Preeti Wanti Srivastava*  
Professor (Dr.) Preeti Wanti Srivastava  
Head of Department  
Department of Operational Research  
Faculty of Mathematical Sciences  
University of Delhi  
Delhi – 110007

अध्यक्ष/Head  
संक्रिया विज्ञान विभाग  
Department of Operational Research  
दिल्ली विश्वविद्यालय, दिल्ली-110007  
University of Delhi, Delhi-110007



Roll No. - 21029761003

## **PROJECT REPORT**

**On**

**“TO CONDUCT AN ABC ANALYSIS AND TO FORECAST THE  
DEMAND FOR SPARE ITEMS AND PLAN THE INVENTORY”**

Submitted in partial fulfillment of the requirements for the award of the degree of  
**MASTER OF OPERATIONAL RESEARCH**

*Undertaken at*

**SM Electronic Technologies Pvt Ltd**

501, Sagar Tower,  
Janakpuri District Centre,  
New Delhi - 110028



**UNIVERSITY OF DELHI  
DEPARTMENT OF OPERATIONAL RESEARCH**

**SUBMITTED BY:**

**Kajal**  
**Master of Operational Research (Semester-4)**  
**Indraprastha College**

**SESSION: 2021-2023**

Department of Operational Research  
Faculty of Mathematical Sciences  
New Academic Block  
University of Delhi  
Delhi-110007

Name of the Student : Kajal

Date of Commencement of the Project : 13<sup>th</sup> February 2023

Date of Submission of the Project: : 8<sup>th</sup> May 2023

Title of Project : To conduct an ABC analysis and to forecast the demand for spare parts and to plan the inventory

Name and address of the Organization : SM Electronic Technologies Pvt Ltd  
501, Sagar Tower,  
Janakpuri District Centre,  
New Delhi -110028

Project Mentor (Organization) : Mrs. Sandhya Kalyan

Supervisors from the Teaching Faculty : Prof. (Dr.) Preeti Wanti Srivastava  
Prof. Chandra Kant Jaggi  
Prof. P. C. Jha  
Prof. Pankaj Gupta  
Prof. K. K. Aggarwal  
Prof. Anu Gupta Aggarwal  
Prof. Ompal Singh  
Prof. Mukesh Kumar Mehlawat  
Dr. Aditi Khanna  
Dr. Vandana Khaitan  
Dr. Abhishek Tandon  
Dr. Sameer Anand  
Dr. Shilpi Verma  
Dr. Adarsh Anand  
Dr. Kaushal Kumar  
Dr. Gurjeet Kaur  
Dr. Jagvinder Singh



## **ACKNOWLEDGEMENT**

It is a great sense of satisfaction and a matter of privilege to me to have worked on a project entitled “**To conduct an ABC analysis and to forecast the demand for spare parts and to plan the inventory**”. It was a complete learning experience for me as far as the application of operational research is concerned.

I would like to thank (Head) Professor **Preeti Wanti Srivastava, Prof. (Dr.) Pankaj Gupta, Prof. (Dr.) C.K. Jaggi, Prof. (Dr.) P.C. Jha, Prof. (Dr.) K.K. Aggarwal, Prof. (Dr.) Anu Gupta Aggarwal, Prof. (Dr.) Ompal Singh, Dr. Mukesh Kumar Mehlawat, Dr. Vandana Khaitan, Dr. Adarsh Anand, Dr. Aditi Khanna, Dr. Kaushal Kumar, Dr. Abhishek Tandon, Dr. Sameer Anand, Dr. Shilpi Verma, Dr. Gurjeet Kaur, Dr. Jagvinder Singh** Department of Operational Research for giving us student’s such a wonderful opportunity to prepare ourselves for what’s coming ahead. The Project is a complete learning experience in itself and it prepares us for our upcoming Corporate Journey.

The success and Final Outcome of this project required a lot of guidance and assistance and I was lucky enough to have been worked under the mentorship of **Prof. C.K. Jaggi** It wouldnot have been possible without the guidance of my mentors.

Kajal  
Master of Operational Research (Semester - IV)  
Department of Operational Research University of Delhi  
Delhi – 110007

## **CERTIFICATE**

This is to certify that this project entitled “**To conduct an ABC analysis and to forecast the demand for spare items and plan the inventory**” is my original work carried out in the year 2023, and has been submitted for partial fulfilment of the course Master of Operational Research. This project report has not been submitted earlier in full or in part for any other diploma or degree to any other University or Institute to the best of my knowledge.

Kajal  
Master of Operational Research (Semester - IV)  
Department of Operational Research University of Delhi  
Delhi – 110007

Professor (Dr.) Preeti Wanti Srivastava  
Head of Department  
Department of Operational Research  
Faculty of Mathematical Sciences  
University of Delhi  
Delhi – 110007



**SM Electronic Technologies Pvt. Ltd.**  
501-504, 5th Floor, Sagar Tower,  
District Center Janak Puri, New-Delhi-110 058  
Tel : 011-2510 1136/37 Fax : 011-2510 1138  
E-Mail : sales@mysmindia.com www.smetgroup.com

13th Feb, 2023

To

The Head of Department  
Department of operational Research  
Faculty of Mathematical science  
University of Delhi  
Delhi-110007

**Subject:** Regarding assignment of project at SM Electronic Technologies Pvt Ltd

Dear Mam,

This is with reference to your request letter received regarding permission to do a project in our company **SM Electronic Technologies Pvt Ltd.**

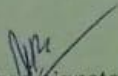
we are pleased to inform you that your request has been accepted and the company hereby give permission to **Ms Kajal** from Department of operational research, university of Delhi (IP College) to do a project on Inventory management from 13<sup>th</sup> Feb, 2023 to 30<sup>th</sup> April, 2023.

I would like to inform you that the project is for Academic purpose only. The data will be kept strictly confidential and will be used solely for academic purpose. She will be associated with us until the completion of the project and will be provided with all the relevant inputs

This letter is for the project purpose only not for any employment. No stipend will be given to intern.

Thanking you

For SM Electronic Technologies Pvt Ltd

  
Authorized Signatory

Branch Offices: PUNE Tel/fax: 020-2528 3387 / 2528 3393 • HYDERABAD Tel/fax: 040-2717 6676  
• CHENNAI OFFICE Tel: 044-2474 6727 • AHMEDABAD Tel: 079-30620250

Head Office: #2, 5th Block, Nagarabhai 2nd Stage, Malagalli, Bengaluru-560 072, INDIA  
Tel: 91-80-6773 4567 Fax: 91-80-6773 4545

An ISO 9001 : 2008 Certified Company

CIN: U72900KA2004PTC033763



**SM Electronic Technologies Pvt. Ltd.**

501-504, 5th Floor, Sagar Tower,  
District Center Janak Puri, New-Delhi-110 058

Tel : 011-2510 1136/37 Fax : 011-2510 1138

E-Mail: sales@mysmindia.com www.smetgroup.com

The Head of Department

Department of Operational Research

Faculty of Mathematical sciences

New Academic block

University of Delhi

Delhi- 110007

Date: 4<sup>th</sup> May, 2023


**Subject: Completion of Academic Project**

Dear Mam,

This to certify that **Ms Kajal**, student of Master of Operational Research, University of Delhi, has successfully completed her academic project for **SM Electronic Technologies Pvt. Ltd.** And submitted the project report titled "To conduct an ABC analysis and to forecast the demand for spare parts and to suggest an optimal procurement policy".

Best Regards

**SM Electronic Technologies Pvt. Ltd.**

  
Authorized Signatory

Branch Offices: PUNE Telefax: 020-2528 3387, 2528 3393 • HYDERABAD Telefax : 040-2717 6676  
• CHENNAI OFFICE Tel : 044-2474 6727 • AHMEDABAD Tel: 079-30620250

Head Office: #2, 8th Block, Nagarabhavi 2nd Stage, Malagala, Bengaluru-560 072. INDIA  
Tel: 91-80-6773 4567 Fax: 91-80-6773 4545

An ISO 9001 : 2008 Certified Company

CIN: U72900KA2004PTC033763

# Certificate

This is to certify that this project entitled **"To construct a project schedule that identifies critical activities and the Time-Cost Trade-Off of the entire project"** is my original work carried out at R J Construction in year 2023, and has been submitted for partial fulfillment of the requirements of the course Master of Operational Research. This project report has not been submitted earlier in full or in part for any other diploma or degree to any other university or institute to the best of my knowledge.



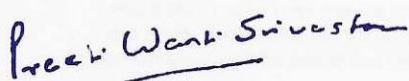
**Mohammad Imran Ali**

Master of Operational Research

Department of Operational Research

University of Delhi

Delhi – 110007



**Professor (Dr.) Preeti Wanti Srivastava**

Head Department of Operational Research

Faculty of Mathematical Sciences

University of Delhi

Delhi – 110007

अध्यक्ष/Head

संक्रिया विज्ञान विभाग

Department of Operational Research

दिल्ली विश्वविद्यालय, दिल्ली-110007

University of Delhi, Delhi-110007

**Roll No: 21025761011**

**Project Report**  
**On**  
**“To construct a project schedule that identifies critical activities and the Time-Cost Trade-Off of the entire project”**  
**For**  
**R J Construction**

**Submitted By**  
**Mohammad Imran Ali**

**In**  
**In Partial fulfillment of the requirements of the Degree of Master of**  
**Operational Research**  
**To**



**Department of Operational Research**  
**Faculty of Mathematical Sciences**  
**New Academic Block**  
**University of Delhi**  
**Delhi-110007**  
**(2023)**

## **DEPARTMENT OF OPERATIONAL RESEARCH**

**FACULTY OF MATHEMATICAL SCIENCES**

**New Academy Block**

**UNIVERSITY OF DELHI, DELHI-110007**

**Name of Student** : Mohammad Imran Ali

**Date of commencement of Project** : 14<sup>th</sup> Feb, 2023

**Date of Submission of the Project** : 8<sup>st</sup> May, 2023

**Title of Project** : “To construct a project schedule that identifies critical activities and the Time-Cost Trade-Off of the entire project “

**Name and Address of the Organization** : R J CONSTRUCTION  
167, Sainik vihar, Mohan Gardan ,  
Uttam Nagar, New Delhi - 110059

**Supervisors from the teaching faculty:** Prof.(Dr) Preeti Wanti Srivastava  
Prof. Chandra Kant Jaggi  
Prof. P. C. Jha  
Prof. Pankaj Gupta  
Prof. K. K. Aggarwal  
Prof. Anu Gupta Aggarwal  
Prof. Ompal Singh  
Prof. Mukesh Kumar Mehlawat  
Dr. Aditi Khanna  
Dr. Vandana Khaitan  
Dr. Abhishek Tandon  
Dr. Sameer Anand  
Dr. Shilpi Verma  
Dr. Adarsh Anand  
Dr. Kaushal Kumar  
Dr. Gurjeet Kaur  
Dr. Jagvinder Singh

# **Acknowledgement**

I would like to thank all those sincerely, who have helped me in successful completion of this project. I would like to express my sincere thanks and appreciation to **Professor (Dr) Preeti Wanti Srivastava (H.O.D Operational Research)** for providing us with an opportunity to do the project under his valuable supervision.

Without her assistance, I would not have been able to complete my project successfully.

I want to pay my sincere gratitude to our benevolent Professors Prof. (Dr.) Preeti Wanti Srivastava ,Prof. (Dr.) Pankaj Gupta, Prof. (Dr.) Chandra K. Jaggi, Prof. (Dr.) K.K. Aggarwal, Dr. Shilpi Verma, Dr. Gurjeet Kaur, Dr. Abhishek Tandon, Prof. (Dr.) P.C Jha, Prof. (Dr.) Anu Gupta Aggarwal, Prof. (Dr.) Ompal Singh, Prof. (Dr.) Mukesh Kumar Mehlawat, Dr. Vandana Khaitan, Dr. Aditi Khanna, Dr. Adarsh Anand, Dr. Kaushal Kumar, Dr. Sameer Anand and Dr. Jagvinder Singh for the comprehensive discussions during the tenure of my project.

I would also like to thank all my classmates for their co-operation. I also would like to thank my parents for their assistance wherever required.

**Mohammad Imran Ali**

Master of Operational Research (Semester -IV)

Department of Operational Research

University of Delhi

Delhi- 110007



# **Certificate**

This is to certify that this project entitled **“To construct a project schedule that identifies critical activities and the Time-Cost Trade-Off of the entire project”** is my original work carried out at R J Construction in year 2023, and has been submitted for partial fulfillment of the requirements of the course Master of Operational Research. This project report has not been submitted earlier in full or in part for any other diploma or degree to any other university or institute to the best of my knowledge.

**Mohammad Imran Ali**

Master of Operational Research

Department of Operational Research

University of Delhi

Delhi – 110007

**Professor (Dr.) Preeti Wanti Srivastava**

Head Department of Operational Research

Faculty of Mathematical Sciences

University of Delhi

Delhi – 110007



786/92

Regd. No. : .....

# R J CONSTRUCTION

167, Sainik Vihar, Mohan Garden, Uttam Nagar, New Delhi-110059  
M.: 9958093188, 9350226641, 9818721084, E-mail : rjconstruction786@hotmail.com

Ref. No. ....

Dated : .....

To,  
The Head of Department  
Department of Operational Research  
Faculty of Mathematical Sciences  
University of Delhi  
Delhi-110007

Date- 14<sup>th</sup> Feb.23

**Subject:- Reg. assignment of project at RJ CONSTRUCTION**

Dear Sir,

This is with reference to your request letter received regarding permission to do a project in our company RJ CONSTRUCTION.

We are pleased to inform you that your request has been accepted and the company hereby gives permission to Mohammad Imran Ali from Department of Operational Research, University of Delhi (Hansraj College) to do a project on Scheduling Techniques from 14<sup>th</sup> Feb-2023 to 30<sup>th</sup> April 2023.

I would like to inform you that the project assignment is for academic purpose only. The data will be kept strictly confidential and will be used solely for academic purpose. He will be associated with us until the completion of the project and will be provided with all the relevant inputs.

Thanking You

RJ CONSTRUCTION

**W/s R J CONSTRUCTION**

  
000 Auth.Sig



786/92

Regd. No. : .....

# R J CONSTRUCTION

167, Sainik Vihar, Mohan Garden, Uttam Nagar, New Delhi-110059  
M.: 9958093188, 9350226641, 9818721084, E-mail : [rjconstruction786@hotmail.com](mailto:rjconstruction786@hotmail.com)

Ref. No. ....

Dated : .....

To,  
The Head of Operational Research,  
Faculty of Mathematical Science,  
The University of Delhi,  
New Delhi – 110007

Date: 5<sup>th</sup> May, 2023

Subject: - Regarding the completion of a project to Mohammad Imran Ali

Dear Sir,

About your letter regarding the curriculum industrial project on applications of Operational Research, I am pleased to inform you that Mohammad Imran Ali, a student of Master of Operational Research has been successfully completed a project schedule that identifies critical activities and the Time- Cost Trade- Off the entire project for the company.

With Best Regards,

RJ Construction

R J CONSTRUCTION (PVT.) LTD.  
Prop. - *[Signature]*  
Prop. - *[Signature]*

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# CERTIFICATE

This is to certify that this project entitled "To Study the customer satisfaction towards e-banking services in special reference to CBI" is my original work carried out at "Central Bank of India" in the year 2023, and this has been submitted for partial fulfilment of the Degree of Master of Operational Research. This project report has not been submitted earlier in full or part time for any other diploma or degree at any other University or Institution to the best of my knowledge.

*Mohit Garg*

Mohit Garg  
Master of Operational Research  
(Semester -IV)  
Department of Operational  
Research  
University of Delhi-110007

*Preeti Wanti Srivastava*

Professor (Dr.) Preeti Wanti Srivastava  
Head  
Department of Operational Research  
Faculty of Mathematical Sciences  
University of Delhi  
Delhi – 110007

अध्यक्ष/Head  
संक्रिया विज्ञान विभाग  
Department of Operational Research  
दिल्ली विश्वविद्यालय, दिल्ली-110007  
University of Delhi, Delhi-110007

**Roll No. – 21056761010**

# **Project Report**

On

**“Customer Satisfaction towards E-banking services”**

For

**“Central Bank of India”**

Submitted in partial fulfilment of the requirements for the  
award of the degree of

**Master of Operational Research**

To



Department of Operational Research

Faculty of Mathematical Sciences

University of Delhi

Delhi-110007

SUBMITTED BY:

MOHIT GARG

MASTER OF OPERATIONAL RESEARCH

**(2021-2023)**

<b>Name of the student</b>	<b>MOHIT GARG</b>
<b>Date of commencement of the project</b>	<b>31<sup>st</sup> Jan 2023</b>
<b>Date of submission of the project</b>	<b>3<sup>rd</sup> May 2023</b>
<b>Title of the project</b>	<b>“To study the customer satisfaction towards e-banking services in special reference to Central Bank of India”.</b>
<b>Name and address of the organization</b>	<b>CENTRAL BANK OF INDIA, Shahpur, Muzaffarnagar, Uttar Pradesh-251318.</b>
<b>Name of the supervisors from teaching faculty</b>	<b>Prof. (Dr.) Preeti Wanti Srivastava</b> <b>Prof. (Dr.) Chandra Kant Jaggi</b> <b>Prof. (Dr.) P. C. Jha</b> <b>Prof. (Dr.) Pankaj Gupta</b> <b>Prof. (Dr.) K. K. Aggarwal</b> <b>Prof. (Dr.) Anu Gupta Aggarwal</b> <b>Prof. (Dr.) Ompal Singh</b> <b>Prof. (Dr.) Mukesh Kumar Mehlawat</b> <b>Dr. Aditi Khanna</b> <b>Dr. Vandana Khaitan</b> <b>Dr. Abhishek Tandon</b> <b>Dr. Sameer Anand</b> <b>Dr. Shilpi Verma</b> <b>Dr. Adarsh Anand</b> <b>Dr. Kaushal Kumar</b> <b>Dr. Gurjeet Kaur</b> <b>Dr. Jagvinder Singh</b>

# CERTIFICATE

This is to certify that this project entitled **“To Study the customer satisfaction towards e-banking services in special reference to CBI”** is my original work carried out at **“Central Bank of India”** in the year 2023, and this has been submitted for partial fulfilment of the Degree of Master of Operational Research. This project report has not been submitted earlier in full or part time for any other diploma or degree at any other University or Institution to the best of my knowledge.

**Mohit Garg**  
**Master of Operational Research**  
**(Semester -IV)**  
**Department of Operational**  
**Research**  
**University of Delhi-110007**

**Professor (Dr.) Preeti Wanti Srivastava**  
**Head**  
**Department of Operational Research**  
**Faculty of Mathematical Sciences**  
**University of Delhi**  
**Delhi – 110007**



# ACKNOWLEDGEMENT

I express my sincere gratitude to the Operational Research Faculty for the timely needful guidance, help, managerial support and co-operation at various levels during the project study.

Also, I would like to thank all the respondents for giving me their precious time and relevant information and experiences I required, without which I would not have been able to complete this project.

**Mohit Garg**  
**Master of Operational Research**  
**(Semester -IV)**  
**Department of Operational Research**  
**University of Delhi-110007**

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- FACTOR ANALYSIS USING SPSS- ANALYSIS
- BIBLIOGRAPHY
- QUESTIONNAIRE

## Approval letter:



BRANCH SHAHPUR

SHAHPUR, MUZAFFAR NAGAR, UTTAR PRADESH -251318

Phone .No. 8171038686, 9336489206

e-mail: [bmmcer0271@centralbank.co.in](mailto:bmmcer0271@centralbank.co.in)

DATED-13/02/2023

To,

The Head of Department,  
Department of Operational Research,  
Faculty of Mathematical Sciences  
University of Delhi  
Delhi – 110007

Subject – Approval of Academic Project

Dear Sir/Ma'am,

I am pleased to inform you that Mr. Mohit Garg, a student of Master of Operational Research from batch 2021-23, has been allowed to carry out a project in Marketing Research for the 4<sup>th</sup> semester at CENTRAL BANK OF INDIA, Shahpur, Muzaffarnagar, Uttar Pradesh-251318.

I would like to inform you that no stipend will be provided during the course of this project and the resources provided will be under the terms and policies of our organization

Thanks& Regards,

(Manoj Kumar)  
Branch Manager  
Shahpur



## Completion letter:



BRANCH SHAHPUR

SHAHPUR, MUZAFFAR NAGAR, UTTAR PRADESH -251318

Phone .No. 8171038686, 9336489206

e-mail: [bmmeer0271@centralbank.co.in](mailto:bmmeer0271@centralbank.co.in)

DATE-29-04-2023

To,

The Head of Department,

Department of Operational Research,

Faculty of Mathematical Sciences

University of Delhi

Delhi – 110007

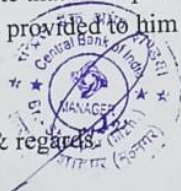
Subject – Completion of Academic Project

Dear Sir/Ma'am,

We hereby certify that **Mr. Mohit Garg** has satisfactorily completed an academic project at Central Bank of India over a duration of 10 weeks. The project report submitted by him is titled "**Customer Satisfaction Towards E-Banking Services**" and was completed as part of his 4th semester at CENTRAL BANK OF INDIA, Shahpur, Muzaffarnagar, Uttar Pradesh-251318.

Please note that no stipend was provided to him during the course of this project, and all the resources provided to him were in accordance with the terms and policies of our organization.

Thanks & regards,



## CERTIFICATE

This is to certify that this project entitled "To Develop an Optimum Production Plan for Products with the Highest Monetary Value" is my original work carried out in the year 2023, and has been submitted for partial fulfilment of the course Master of Operational Research. This project has not been submitted earlier in full or part for any other diploma or degree to any other university or institute to the best of my knowledge.

*Mohit*

Mohit Tokas  
Master of Operational Research (Sem IV)  
Department of Operational Research  
University of Delhi  
Delhi- 110007

*Preeti Wanti Srivastava*

Professor (Dr.) Preeti Wanti Srivastava  
Head  
Department of Operational Research  
Faculty of Mathematical Sciences  
University of Delhi  
Delhi- 110007

अध्यक्ष/Head  
संक्रिया विज्ञान विभाग  
Department of Operational Research  
दिल्ली विश्वविद्यालय, दिल्ली-110007  
University of Delhi, Delhi-110007




## **CERTIFICATE**

This is to certify that this project entitled "**TO CONDUCT ABC ANALYSIS AND FORECAST DEMAND AND SUGGEST OPTIMUM PROCUREMENT POLICY**" is my original work carried out at **Jatin Enterprises** in the year 2023, and has been submitted for partial fulfillment of the requirements of the course Master of Operational Research. This project report has not been submitted earlier in full or in part for any other diploma or degree to any other university or institute to the best of my knowledge.



**Muskan Agrawal**

Master of Operational Research (Semester-IV)  
Department of Operational Research  
University of Delhi  
Delhi-110007



**Prof. (Dr.) Preeti Wanti Srivastava**

Head

Department of Operational Research

Faculty of Mathematical Sciences

University of Delhi

Delhi-110007

अध्यक्ष/Head

संक्रिया विज्ञान विभाग

Department of Operational Research

दिल्ली विश्वविद्यालय, दिल्ली-११०००७

University of Delhi, Delhi-110007

**Project Report**

To

**“CONDUCT ABC ANALYSIS AND FORECAST DEMAND AND SUGGEST  
OPTIMUM PROCUREMENT POLICY”**

For

**(JATIN ENTERPRISES)**

In

**Partial Fulfillment of the  
Requirement of the Degree of  
Master of Operational Research**

To



**Department of Operational Research**

**Faculty of Mathematical Sciences**

**New Academic Block**

**University of Delhi**

**Delhi-110007**

**SUBMITTED BY:**

**MUSKAN AGRAWAL**

**MASTER OF OPERATIONAL RESEARCH**

**NORTH CAMPUS**

**2023**

**DEPARTMENT OF OPERATIONAL RESEARCH**

**FACULTY OF MATHEMATICAL SCIENCES**

**NEW ACADEMIC BLOCK**

**UNIVERSITY OF DELHI**

**DELHI-110007**

**Name of Student : MUSKAN AGRAWAL**

**Date of commencement of Project : February 12, 2023**

**Date of Submission of the Project : May 8, 2023**

**Title of Project : “To conduct ABC Analysis and forecast the demand and suggest optimum procurement policy.”**

**Name and Address of the Organization : Jatin Enterprises, B-122, Sector-2,  
Bawana Industrial Area, Delhi- 110039**

**Supervisors from the teaching faculty :**

- Prof. (Dr.) Preeti Wanti Srivastava**
- Prof. Chandra Kant Jaggi**
- Prof. P. C. Jha**
- Prof. Pankaj Gupta**
- Prof. K. K. Aggarwal**
- Prof. Anu Gupta Aggarwal**
- Prof. Ompal Singh**
- Prof. Mukesh Kumar Mehlawat**
- Dr. Aditi Khanna**
- Dr. Vandana Khaitan**
- Dr. Abhishek Tandon**
- Dr. Sameer Anand**
- Dr. Shilpi Verma**
- Dr. Adarsh Anand**
- Dr. Kaushal Kumar**
- Dr. Gurjeet Kaur**
- Dr. Jagvinder Singh**



## **ACKNOWLEDGEMENT**

I express my sincere gratitude to the faculty members of Department of Operational Research, University of Delhi for their invaluable guidance, support and co-operation at various levels during the project study. It is my pleasure to thank to whom I owe a lot for giving me an opportunity to do my training at Jatin Enterprises.

I also owe a special thanks for allowing me to do project under their guidance. The project would not be a success without the constant and valuable guidance by **Dr. C.K. Jaggi** and **Dr. K.K. Aggarwal**, my internal guide for the project, who is rendering all sorts of help as and when required.

**Muskan Agrawal**

**Master of Operational Research (Semester-IV)**

**Department of Operational Research**

**University of Delhi**

**Delhi-110007**

## **CERTIFICATE**

This is to certify that this project entitled “**TO CONDUCT ABC ANALYSIS AND FORECAST DEMAND AND SUGGEST OPTIMUM PROCUREMENT POLICY**” is my original work carried out at **Jatin Enterprises** in the year 2023, and has been submitted for partial fulfillment of the requirements of the course Master of Operational Research. This project report has not been submitted earlier in full or in part for any other diploma or degree to any other university or institute to the best of my knowledge.

**Muskan Agrawal**

Master of Operational Research (Semester-IV)

Department of Operational Research

University of Delhi

Delhi-110007

**Prof. (Dr.) Preeti Wanti Srivastava**

Head

Department of Operational Research

Faculty of Mathematical Sciences

University of Delhi

Delhi-110007

## LETTER OF INTENT

**BRIGHTY**<sup>®</sup>

# JATIN ENTERPRISES

B-122, SECTOR-2, BAWANA INDUSTRIAL AREA, DELHI - 110039

Mob: 9810386718  
9810387718

Ref. No.....

Date...12-2-23...

To,  
Head of the Department  
Department of Operational Research  
Faculty of Mathematical Sciences, New Academic block  
University of Delhi, Delhi-110007  
Phone: 27666672, 27667725/Ext. 1333  
E-mail: [head@or.du.ac.in](mailto:head@or.du.ac.in)  
[heador1@yahoo.com](mailto:heador1@yahoo.com)

February 12, 2023

SUBJECT: Inventory Management of Electrical Home appliances

Dear Sir/Ma'am,

With reference to the above, we are pleased to inform that we accept Ms. Muskan Agrawal, a Student of your department to conduct her research-'Inventory Management of Electrical Home appliances', under our institution.

Please note that no stipend shall be paid to her for this project.

We will look forward to the report and recommendation that will be generated the study. We

Wish the student all the best for her research,

Thanking you,

  
(Jatin Agrawal)

Proprietor

***“TO CONDUCT ABC ANALYSIS AND FORECAST  
DEMAND AND SUGGEST OPTIMUM  
PROCUREMENT POLICY.”***

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# CERTIFICATE

This is to certify that this project entitled " To perform Loan Portfolio Management for the Loan structures of Axis Bank based on the monthly data of multiple financial years " is my original work carried out at " Axis Bank " in the year 2023, and has been submitted for partial fulfilment of the course Master of Operational Research. This project report has not been submitted earlier in full or in part for any other diploma or degree to any other University or Institute to the best of my knowledge.

*Oindrila Banerjee*  
Oindrila Banerjee

Master of Operational Research (Semester - IV)  
Department of Operational Research  
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*Preeti Wanti Srivastava*

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अध्यक्ष/Head  
सक्रिया विज्ञान विभाग  
Department of Operational Research  
दिल्ली विश्वविद्यालय, दिल्ली-110007  
University of Delhi, Delhi-110007



**Project Report**

**On**

**“To perform Loan Portfolio Management for the Loan structures of Axis Bank based on the monthly data of multiple financial years”**

**For**

**Axis Bank**

**No 5 Ghoshpara Road, Kankinara, North 24 Parganas, Kolkata, West Bengal-743123**

**Submitted By Oindrila Banerjee**

**In Partial fulfillment of the requirements of the**

**Degree of Master of Operational Research**

**To Department of Operational Research**

**Faculty of Mathematical Sciences**

**New Academic Block**

**University of Delhi Delhi-110007**

**(2021-2023)**



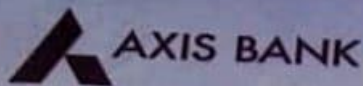
<b>Name of the Student</b>	<b>OINDRILA BANERJEE</b>
<b>Date of Commencement of Project</b>	<b>March 2023</b>
<b>Date of Submission of Project</b>	<b>8<sup>th</sup> MAY 2023</b>
<b>Title of the Project</b>	<b>“To perform Loan Portfolio Management for the Loan structures of Axis Bank based on the monthly data of multiple financial years “</b>
<b>Project Mentor</b>	<b>Mr. SUBRATA CHAKRABORTY</b>
<b>Name of the Organisation</b>	<b>AXIS BANK</b>
<b>Name of the Supervisors from the teaching faculty</b>	<b>Prof. (Dr.) Preeti wanti Srivastava</b> <b>Prof. Chandra Kant Jaggi</b> <b>Prof. P.C. Jha</b> <b>Prof. Pankaj Gupta</b> <b>Prof. K.K. Aggarwal</b> <b>Prof. Anu Gupta Aggarwal</b> <b>Prof. Ompal Singh</b> <b>Prof. Mukesh Kumar Mehlawat</b> <b>Dr. Aditi Khanna</b> <b>Dr. Vandana Khaitan</b> <b>Dr. Abhishek Tandon</b> <b>Dr. Sameer Anand</b> <b>Dr. Shilpi Verma</b> <b>Dr. Adarsh Anand</b> <b>Dr. Kaushal Kumar</b> <b>Dr. Gurjeet Kaur</b> <b>Dr. Jagvinder Singh</b>

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Oindrila Banerjee  
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University of Delhi  
Delhi - 110007

Professor (Dr.) Preeti Wanti Srivastava  
Head  
Department of Operational Research  
Faculty of Mathematical Sciences  
University of Delhi, delhi-110007



To,  
The Head of Department,  
Department of Operational Research,  
Faculty of Mathematical Sciences,  
University of Delhi,  
Delhi-110007

Date: 06.03.2023

Subject: Assignment of project/internship for 2 months at Axis Bank Ltd.

Madam/Sir,

This is in reference to application of Miss Oindrila Banerjee regarding permission to do a project at Axis Bank Ltd.

We are pleased to inform that Miss Oindrila Banerjee's request has been accepted by competent authority and we hereby give permission to Miss Oindrila Banerjee from Department of Operational Research, University of Delhi (Ramjas College) to do internship at Axis Bank Ltd., Bhatpara Branch (Kolkata) for a maximum period of 2 months.

Please note that no stipend will be paid during this period and the project assignment should be strictly meant for academic purposes only. Further, organizational data integrity and confidentiality to be maintained at all times.

Thanking You,



For Axis Bank Ltd.,

*Subrata Chakraborty*  
**SUBRATA CHAKRABORTY**  
AVP & BRANCH HEAD  
SS: 5401 EMP- 5799

(Authorised Signatory)  
AXIS BANK LTD.  
BHATPARA BRANCH

GROUND AND FIRST FLOOR, 1/1, WEST GHOSH PARA ROAD, PO KANKINARA, PS JAGATDAL, DIST NORTH 24 PARGANAS,  
PIN CODE 743126033-25814534  
REGISTERED OFFICE : "Trishul" - 3rd Floor Opp. Samartheswar Temple, Near Law Garden, Ellisbridge, Ahmedabad - 380006.  
Telephone No. - 079-26409327 Fax No. - 079-26409321 CIN: L65110GJ1993PLC020769 Website - www.axisbank.com



To,  
The Head of Department,  
Department of Operational  
Research, Faculty of Mathematical  
Sciences, University of Delhi,  
Delhi-110007

Date: 08-05-2023

Subject: Successful completion of project at Axis Bank Ltd.

Madam/Sir,

This is in certify that Miss Oindrila Banerjee has successfully completed her Industrial Project with Axis Bank Ltd. titled "To perform Loan Portfolio Management for the Loan structures of Axis Bank based on the monthly data of multiple financial years ",using the required data provided.

Thanking you,

*Subrata Chakraborty*  
For Axis Bank Ltd.,

**SUBRATA CHAKRABORTY**  
AVP & BRANCH HEAD  
SS: 5401 EMP- 5799  
AXIS BANK LTD.  
BHATPARA BRANCH



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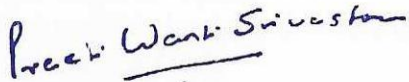


## CERTIFICATE

This is to certify that the project entitled “**Process Quality Management**” is my original work carried out at “**Any Graphics Private Limited**” in the year 2023 for the partial fulfillment of the course Masters of Operational Research. This project report has not been submitted earlier nor in full or in part for any other Diploma or Degree to any other University or Institution to the best of my knowledge.



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University of Delhi, Delhi-110007

Project report  
on  
**“PROCESS QUALITY MANAGEMENT”**  
undertaken at  
**ANY Graphics Pvt. Ltd.**  
submitted by  
**SHUBHAM KADWAL**  
in  
Partial fulfilment of the Requirement of the  
Degree of Master of Operational Research  
To



Department of Operational Research  
Faculty of Mathematical Sciences  
New Academic Block  
University of Delhi  
Delhi – 110007  
(2023)

**DEPARTMENT OF OPERATIONAL RESEARCH  
FACULTY OF MATHEMATICAL SCIENCES  
NEW ACADEMIC BLOCK  
UNIVERSITY OF DELHI  
DELHI-110007**

Name of the Student : Shubham kadwal

Title of the Project : Process Quality Management

Date of Commencement of the Project : February 1<sup>st</sup>, 2023

Date of Submission of the Project : May 9<sup>th</sup>, 2022

Name and Address of the Organization : ANY Graphics Pvt. Ltd.  
PRI, B-81 Sector 64 ,HCL  
Gautam Buddha Nagar,  
Noida, Uttar Pradesh 201301

Supervisors from the teaching faculty : Prof. (Dr.) Preeti Wanti Srivastava  
Prof. Chandra Kant Jaggi  
Prof. Prakash C. Jha  
Prof. Pankaj Gupta  
Prof. K.K. Aggarwal  
Prof. Anu Gupta Aggarwal  
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## **ACKNOWLEDGEMENT**

I would like to thank all those sincerely, who have helped me in successful completion of this project. I would like to express my sincere thanks and appreciation to Prof. (Dr.) Prakash C. Jha for providing us with an opportunity to do the project under his valuable supervision. Without his assistance, I would not have been able to complete my project successfully.

I express my sincere gratitude to our benevolent Professors Prof. (Dr.) Preeti Wanti Srivastava, Prof. (Dr.) Prakash C. Jha, Prof. (Dr.) Pankaj Gupta, Prof. (Dr.) K. K. Aggarwal, Prof. (Dr.) Anu Gupta Aggarwal, Prof. (Dr.) Ompal Singh, Prof.(Dr). Mukesh Kumar Mehlawat, Dr. Aditi Khanna, Dr. Vandana Khaitan, Dr. Adarsh Anand, Dr. Kaushal Kumar, Dr. Sameer Anand, Dr. Gurjeet Kaur, Dr. Abhishek Tandon, Dr. Shilpi Verma, Dr. Jagvinder Singh.

I would also like to thank PhD and M. Phil students for their guidance and co-operation throughout my project. I also would like to thank my family and friends for their kind assistance and silent motivation.

I am grateful to Mr. Naveen Goel, Managing Director, ANY Graphics Pvt. Ltd., without whose help this project would have never materialized.

### **SHUBHAM KADWAL**

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