**VISVESVARAYA TECHNOLOGICAL UNIVERSITY**

**Jnana Sangama, Belagavi-590018, Karnataka**



A PROJECT REPORT ON

**“EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF FINE AGGREGATE USING WASTE BRICK POWDER”**

*Submitted in partial fulfilment of the requirements for the Eight semester project work*

*Phase-2(18CVP83)*

**BACHELOR OF ENGINEERING**

**IN**

**CIVIL ENGINEERING**

*Submitted by:*

**NANDISH U**

**(1VK19CV403)**

*Under the guidance of*

**DR. SHASHIKUMAR C S**

Associate Professor and Head

Dept. of Civil Engineering



Janatha Education Society(R)

**DEPARTMENT OF CIVIL ENGINEERING**

**VIVEKANANDA INSTITUTE OF TECHNOLOGY**

**Gudimavu, Kumbalagodu Post, Kengeri Hobli, Bengaluru-560074**

**2021-22**

**Janatha Education Society(R)**

**VIVEKANANDA INSTITUTE OF TECHNOLOGY**

Gudimavu, Kumbalagodu Post, Kengeri Hobli, Bengaluru – 560 074



**DEPARTMENT OF CIVIL ENGINEERING**

**CERTIFICATE**

This is to certify that Project Phase-2 report entitled **“EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF FINE AGGREGATE USING WASTE BRICK POWDER”** carried out by **NANDISH U** bearing **USN-(1VK19CV403)** a bonafide student of **Vivekananda Institute of Technology,** Bengaluru in partial fulfilment for the academic year 2021-22. It is certified that all corrections/suggestions indicated have been incorporated in the report deposited in the department library. The Project Phase-2 has been approved as it satisfies the academic requirements in respect of project work prescribed for the said degree.

Signature of the Principal

**DR. PADMANABHA S**

Principal

VKIT, Bengaluru.

Signature of the Guide

**DR. C S SHASHIKUMAR**

Associate Professor & Head

Dept. of Civil Engineering

VKIT, Bengaluru.

|  |  |  |
| --- | --- | --- |
| **SI No** | **NAME OF EXAMINER** | **SIGNATURE OF EXAMINER** |
| **1.** |  |  |
| **2.** |  |  |

**ACKNOWLEDGEMENT**

It is my time for expressing my sincere gratitude towards all who are responsible for the successful completion of Project Phase-2 work. Firstly, I would like to express my sincere regards and heart full thanks to our guide **DR. C S SHASHIKUMAR** Associate Professor and Head, Dept. of civil engineering, VKIT, Bengaluru, whose constant encouragement, guidance and support throughout the Project Phase -2 work made me to complete the work successfully on time. Also, I would like to thank our project coordinator **MR. SIDDARAJU N** Assistant Professor, Dept. of Civil Engineering, VKIT, Bengaluru, for his support.

I, take this opportunity to express my sincere words of gratitude to our beloved principal **DR. PADMANABHA S** for being kind enough to provide me an opportunity to work on a project in this institution.

I, would like to convey my heartfelt gratitude to our beloved Vice Principle**, DR. D V CHANDRASHEKAR**, VKIT, Bengaluru, for his support and encouragement during my studies.

My sincere gratitude is due towards Management of my institution **Vivekananda Institute of Technology,** Bengaluru.

I am, grateful for all the teaching and non-teaching staff of **Department of Civil Engineering**, VKIT, Bengaluru, for providing me support and required facilities for successful completion of this Project Phase-2.

Last but not the least, I would like to thank my **Parents** **and** **Friends** who have helped me directly and indirectly in all possible ways for the success of this Project Phase-2.

**DECLARATION**

I, **NANDISH U** 8th semester B.E, bearing **USN (1VK19CV403),** Vivekananda Institute of Technology, Bengaluru. Hereby declare that the work being presented on the Project Phase-2 report entitled **“EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF FINE AGGREGATE USING WASTE BRICK POWDER”** which is being submitted as partial fulfilment for 8th semester B.E. in Civil Engineering from Visvesvaraya Technological University, Belagavi, is an authentic record of my own project Phase-2 work that has been carried out by me, during academic year 2021-22 at **Vivekananda Institute of Technology,** Bengaluru under the guidance of **DR.SHASHIKUMAR C S ,** Associate Professor and Head, Dept. of Civil Engineering, Vivekananda Institute of Technology, Bengaluru.

**(NANDISH U)**

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY**

**Jnana Sangama, Belagavi-590018, Karnataka**



A PROJECT REPORT ON

**“EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF FINE AGGREGATE USING WASTE BRICK POWDER”**

*Submitted in partial fulfilment of the requirements for the Eight semester project work*

*Phase-2(18CVP83)*

**BACHELOR OF ENGINEERING**

**IN**

**CIVIL ENGINEERING**

*Submitted by:*

**VINAY M SAWANT**

**(1VK19CV407)**

*Under the guidance of*

**DR. SHASHIKUMAR C S**

Associate Professor and Head

Dept. of Civil Engineering



Janatha Education Society(R)

**DEPARTMENT OF CIVIL ENGINEERING**

**VIVEKANANDA INSTITUTE OF TECHNOLOGY**

**Gudimavu, Kumbalagodu Post, Kengeri Hobli, Bengaluru-560074**

**2021-22**

**Janatha Education Society(R)**

**VIVEKANANDA INSTITUTE OF TECHNOLOGY**

Gudimavu, Kumbalagodu Post, Kengeri Hobli, Bengaluru – 560 074



**DEPARTMENT OF CIVIL ENGINEERING**

**CERTIFICATE**

This is to certify that Project Phase-2 report entitled **“EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF FINE AGGREGATE USING WASTE BRICK POWDER”** carried out by **VINAY M SAWANT** bearing **USN-(1VK19CV407)** a bonafide student of **Vivekananda Institute of Technology,** Bengaluru in partial fulfilment for the academic year 2021-22. It is certified that all corrections/suggestions indicated have been incorporated in the report deposited in the department library. The Project Phase-2 has been approved as it satisfies the academic requirements in respect of project work prescribed for the said degree.

Signature of the Principal

**DR. PADMANABHA S**

Principal

VKIT, Bengaluru.

Signature of the Guide

**DR. C S SHASHIKUMAR**

Associate Professor & Head

Dept. of Civil Engineering

VKIT, Bengaluru.

|  |  |  |
| --- | --- | --- |
| **SI No** | **NAME OF EXAMINER** | **SIGNATURE OF EXAMINER** |
| **1.** |  |  |
| **2.** |  |  |

**ACKNOWLEDGEMENT**

It is my time for expressing my sincere gratitude towards all who are responsible for the successful completion of Project Phase-2 work. Firstly, I would like to express my sincere regards and heart full thanks to our guide **DR. C S SHASHIKUMAR** Associate Professor and Head, Dept. of civil engineering, VKIT, Bengaluru, whose constant encouragement, guidance and support throughout the Project Phase -2 work made me to complete the work successfully on time. Also, I would like to thank our project coordinator **MR. SIDDARAJU N** Assistant Professor, Dept. of Civil Engineering, VKIT, Bengaluru, for his support.

I, take this opportunity to express my sincere words of gratitude to our beloved principal **DR. PADMANABHA S** for being kind enough to provide me an opportunity to work on a project in this institution.

I, would like to convey my heartfelt gratitude to our beloved Vice Principle**, DR. D V CHANDRASHEKAR**, VKIT, Bengaluru, for his support and encouragement during my studies

My sincere gratitude is due towards Management of my institution **Vivekananda Institute of Technology,** Bengaluru.

I am, grateful for all the teaching and non-teaching staff of **Department of Civil Engineering**, VKIT, Bengaluru, for providing me support and required facilities for successful completion of this Project Phase-2.

Last but not the least, I would like to thank my **Parents** **and** **Friends** who have helped me directly and indirectly in all possible ways for the success of this Project Phase-2.

**DECLARATION**

I, **VINAY M SAWANT** 8th semester B.E, bearing **USN (1VK19CV407),** Vivekananda Institute of Technology, Bengaluru. Hereby declare that the work being presented on the Project Phase-2 report entitled **“EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF FINE AGGREGATE USING WASTE BRICK POWDER”** which is being submitted as partial fulfilment for 8th semester B.E. in Civil Engineering from Visvesvaraya Technological University, Belagavi, is an authentic record of my own project Phase-2 work that has been carried out by me, during academic year 2021-22 at **Vivekananda Institute of Technology,** Bengaluru under the guidance of **DR.SHASHIKUMAR C S ,** Associate Professor and Head, Dept. of Civil Engineering, Vivekananda Institute of Technology, Bengaluru.

**(VINAY M SAWANT)**

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY**

**Jnana Sangama, Belagavi-590018, Karnataka**



A PROJECT REPORT ON

**“EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF FINE AGGREGATE USING WASTE BRICK POWDER”**

*Submitted in partial fulfilment of the requirements for the Eight semester project work*

*Phase-2(18CVP83)*

**BACHELOR OF ENGINEERING**

**IN**

**CIVIL ENGINEERING**

*Submitted by:*

**MAHADEV PRASAD N M**

**(1VK18CV008)**

*Under the guidance of*

**DR. SHASHIKUMAR C S**

Associate Professor and Head

Dept. of Civil Engineering



Janatha Education Society(R)

**DEPARTMENT OF CIVIL ENGINEERING**

**VIVEKANANDA INSTITUTE OF TECHNOLOGY**

**Gudimavu, Kumbalagodu Post, Kengeri Hobli, Bengaluru-560074**

**2021-22**

**Janatha Education Society(R)**

**VIVEKANANDA INSTITUTE OF TECHNOLOGY**

Gudimavu, Kumbalagodu Post, Kengeri Hobli, Bengaluru – 560 074



**DEPARTMENT OF CIVIL ENGINEERING**

**CERTIFICATE**

This is to certify that Project Phase-2 report entitled **“EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF FINE AGGREGATE USING WASTE BRICK POWDER”** carried out by **MAHADEV PRASAD N M** bearing **USN-(1VK18CV008)** a bonafide student of **Vivekananda Institute of Technology,** Bengaluru in partial fulfilment for the academic year 2021-22. It is certified that all corrections/suggestions indicated have been incorporated in the report deposited in the department library. The Project Phase-2 has been approved as it satisfies the academic requirements in respect of project work prescribed for the said degree.

Signature of the Principal

**DR. PADMANABHA S**

Principal

VKIT, Bengaluru.

Signature of the Guide

**DR. C S SHASHIKUMAR**

Associate Professor & Head

Dept. of Civil Engineering

VKIT, Bengaluru.

|  |  |  |
| --- | --- | --- |
| **SI No** | **NAME OF EXAMINER** | **SIGNATURE OF EXAMINER** |
| **1.** |  |  |
| **2.** |  |  |

**ACKNOWLEDGEMENT**

It is my time for expressing my sincere gratitude towards all who are responsible for the successful completion of Project Phase-2 work. Firstly, I would like to express my sincere regards and heart full thanks to our guide **DR. C S SHASHIKUMAR** Associate Professor and Head, Dept. of civil engineering, VKIT, Bengaluru, whose constant encouragement, guidance and support throughout the Project Phase -2 work made me to complete the work successfully on time. Also, I would like to thank our project coordinator **MR. SIDDARAJU N** Assistant Professor, Dept. of Civil Engineering, VKIT, Bengaluru, for his support.

I, take this opportunity to express my sincere words of gratitude to our beloved principal **DR. PADMANABHA S** for being kind enough to provide me an opportunity to work on a project in this institution.

I, would like to convey my heartfelt gratitude to our beloved Vice Principle**, DR. D V CHANDRASHEKAR**, VKIT, Bengaluru, for his support and encouragement during my studies.

My sincere gratitude is due towards Management of my institution **Vivekananda Institute of Technology,** Bengaluru.

I am, grateful for all the teaching and non-teaching staff of **Department of Civil Engineering**, VKIT, Bengaluru, for providing me support and required facilities for successful completion of this Project Phase-2.

Last but not the least, I would like to thank my **Parents** **and** **Friends** who have helped me directly and indirectly in all possible ways for the success of this Project Phase-2.

**DECLARATION**

I, **MAHADEV PRASAD N M** 8th semester B.E, bearing **USN (1VK18CV008),** Vivekananda Institute of Technology, Bengaluru. Hereby declare that the work being presented on the Project Phase-2 report entitled **“EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF FINE AGGREGATE USING WASTE BRICK POWDER”** which is being submitted as partial fulfilment for 8th semester B.E. in Civil Engineering from Visvesvaraya Technological University, Belagavi, is an authentic record of my own project Phase-2 work that has been carried out by me, during academic year 2021-22 at **Vivekananda Institute of Technology,** Bengaluru under the guidance of **DR.SHASHIKUMAR C S ,** Associate Professor and Head, Dept. of Civil Engineering, Vivekananda Institute of Technology, Bengaluru.

**(MAHADEV PRASAD N M)**

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY**

**Jnana Sangama, Belagavi-590018, Karnataka**



A PROJECT REPORT ON

**“EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF FINE AGGREGATE USING WASTE BRICK POWDER”**

*Submitted in partial fulfilment of the requirements for the Eight semester project work*

*Phase-2(18CVP83)*

**BACHELOR OF ENGINEERING**

**IN**

**CIVIL ENGINEERING**

*Submitted by:*

**NITHIN M**

**(1VK19CV404)**

*Under the guidance of*

**DR. SHASHIKUMAR C S**

Associate Professor and Head

Dept. of Civil Engineering



Janatha Education Society(R)

**DEPARTMENT OF CIVIL ENGINEERING**

**VIVEKANANDA INSTITUTE OF TECHNOLOGY**

**Gudimavu, Kumbalagodu Post, Kengeri Hobli, Bengaluru-560074**

**2021-22**

**Janatha Education Society(R)**

**VIVEKANANDA INSTITUTE OF TECHNOLOGY**

Gudimavu, Kumbalagodu Post, Kengeri Hobli, Bengaluru – 560 074



**DEPARTMENT OF CIVIL ENGINEERING**

**CERTIFICATE**

This is to certify that Project Phase-2 report entitled **“EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF FINE AGGREGATE USING WASTE BRICK POWDER”** carried out by **NITHIN M** bearing **USN-(1VK19CV404)** a bonafide student of **Vivekananda Institute of Technology,** Bengaluru in partial fulfilment for the academic year 2021-22. It is certified that all corrections/suggestions indicated have been incorporated in the report deposited in the department library. The Project Phase-2 has been approved as it satisfies the academic requirements in respect of project work prescribed for the said degree.

Signature of the Principal

**DR. PADMANABHA S**

Principal

VKIT, Bengaluru.

Signature of the Guide

**DR. C S SHASHIKUMAR**

Associate Professor & Head

Dept. of Civil Engineering

VKIT, Bengaluru.

|  |  |  |
| --- | --- | --- |
| **SI No** | **NAME OF EXAMINER** | **SIGNATURE OF EXAMINER** |
| **1.** |  |  |
| **2.** |  |  |

**ACKNOWLEDGEMENT**

It is my time for expressing my sincere gratitude towards all who are responsible for the successful completion of Project Phase-2 work. Firstly, I would like to express my sincere regards and heart full thanks to our guide **DR. C S SHASHIKUMAR** Associate Professor and Head, Dept. of civil engineering, VKIT, Bengaluru, whose constant encouragement, guidance and support throughout the Project Phase -2 work made me to complete the work successfully on time. Also, I would like to thank our project coordinator **MR. SIDDARAJU N** Assistant Professor, Dept. of Civil Engineering, VKIT, Bengaluru, for his support.

I, take this opportunity to express my sincere words of gratitude to our beloved principal **DR. PADMANABHA S** for being kind enough to provide me an opportunity to work on a project in this institution.

I, would like to convey my heartfelt gratitude to our beloved Vice Principle**, DR. D V CHANDRASHEKAR**, VKIT, Bengaluru, for his support and encouragement during my studies

My sincere gratitude is due towards Management of my institution **Vivekananda Institute of Technology,** Bengaluru.

I am, grateful for all the teaching and non-teaching staff of **Department of Civil Engineering**, VKIT, Bengaluru, for providing me support and required facilities for successful completion of this Project Phase-2.

Last but not the least, I would like to thank my **Parents** **and** **Friends** who have helped me directly and indirectly in all possible ways for the success of this Project Phase-2.

**DECLARATION**

I, **NITHIN M** 8th semester B.E, bearing **USN (1VK19CV404),** Vivekananda Institute of Technology, Bengaluru. Hereby declare that the work being presented on the Project Phase-2 report entitled **“EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF FINE AGGREGATE USING WASTE BRICK POWDER”** which is being submitted as partial fulfilment for 8th semester B.E. in Civil Engineering from Visvesvaraya Technological University, Belagavi, is an authentic record of my own project Phase-2 work that has been carried out by me, during academic year 2021-22 at **Vivekananda Institute of Technology,** Bengaluru under the guidance of **DR.SHASHIKUMAR C S ,** Associate Professor and Head, Dept. of Civil Engineering, Vivekananda Institute of Technology, Bengaluru.

**(NITHIN M)**

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY**

**Jnana Sangama, Belagavi-590018, Karnataka**



A PROJECT REPORT ON

**“EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF FINE AGGREGATE USING WASTE BRICK POWDER”**

*Submitted in partial fulfilment of the requirements for the Eight semester project work*

*Phase-2 (18CVP83)*

**BACHELOR OF ENGINEERING**

**IN**

**CIVIL ENGINEERING**

*Submitted by:*

**MAHADEV PRASAD N M 1VK18CV008**

**NANDISH U 1VK19CV403**

**NITHIN M 1VK19CV404**

**VINAY M SAWANT 1VK19CV407**

*Under the guidance of*

**DR. SHASHIKUMAR C S**

Associate Professor and Head

Dept. of Civil Engineering



Janatha Education Society(R)

**DEPARTMENT OF CIVIL ENGINEERING**

**VIVEKANANDA INSTITUTE OF TECHNOLOGY**

**Gudimavu, Kumbalagodu Post, Kengeri Hobli, Bengaluru-560074**

**2021-22**

**Janatha Education Society(R)**

**VIVEKANANDA INSTITUTE OF TECHNOLOGY**

Gudimavu, Kumbalagodu Post, Kengeri Hobli, Bengaluru – 560 074



**DEPARTMENT OF CIVIL ENGINEERING**

**CERTIFICATE**

This is to certify that Project Phase-2 report entitled **“EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF FINE AGGREGATE USING WASTE BRICK POWDER”** carried out by **MAHADEV PRASAD N M (1VK18CV008), NANDISH U (1VK19CV403), NITHIN M (1VK19CV404) and VINAY M SAWANT (1VK19CV407),** 8th semester students of Vivekananda Institute of Technology, Bengaluru in partial fulfilment for the academic year 2021-22. It is certified that all corrections/suggestions indicated have been incorporated in the report deposited in the department library. The Project Phase-2 has been approved as it satisfies the academic requirements in respect of project work prescribed for the said degree.

Signature of the Principal

**DR. PADMANABHA S**

Principal

VKIT, Bengaluru

Signature of the Guide

**DR. SHASHIKUMAR C S**

Associate Professor & Head

Dept. of Civil Engineering

VKIT, Bengaluru

|  |  |  |
| --- | --- | --- |
| **SI No** | **NAME OF EXAMINER** | **SIGNATURE OF EXAMINER** |
| **1.** |  |  |
| **2.** |  |  |

**ACKNOWLEDGEMENT**

It is our time for expressing our sincere gratitude towards all who are responsible for the successful completion of Project Phase-2 work. Firstly, we would like to express our sincere regards and heart full thanks to our guide **DR. C S SHASHIKUMAR** Associate Professor and Head, Dept. of civil engineering, VKIT, Bengaluru, whose constant encouragement, guidance and support throughout the Project Phase -2 work made us to complete the work successfully on time. Also, we would like to thank our project co-ordinator **MR. SIDDARAJU N** Assistant Professor, Dept. of Civil Engineering, VKIT, Bengaluru, for his support.

We, take this opportunity to express our sincere words of gratitude to our beloved principal **DR. PADMANABHA S** for being kind enough to provide us an opportunity to work on a project in this institution.

We, would like to convey our heartfelt gratitude to our beloved Vice Principle**, DR. D V CHANDRASHEKAR**, VKIT, Bengaluru, for his support and encouragement during my studies

Our sincere gratitude is due towards Management of my institution **Vivekananda Institute of Technology,** Bengaluru.

We are grateful for all the teaching and non-teaching staff of **Department of Civil Engineering**, VKIT, Bengaluru, for providing me support and required facilities for successful completion of this Project Phase-2.

Last but not the least, we would like to thank our **Parents and Friends** who have helped us directly and indirectly in all possible ways for the success of this Project Phase-2.

**DECLARATION**

We, **MAHADEV PRASAD N M (1VK18CV008), NANDISH U (1VK19CV403), NITHIN M (1VK19CV404)** and **VINAY M SAWANT (1VK19CV407)** 8th semester, students of **Vivekananda Institute of Technology**, Bengaluru. Hereby declare that the work being presented on the Project Phase-2 report entitled **“EXPERIMENTAL STUDY ON PARTIAL REPLACEMENT OF FINE AGGREGATE USING WASTE BRICK POWDER”** which is being submitted as partial fulfilment for 8th semester B.E. in Civil Engineering from Visvesvaraya Technological University, Belagavi, is an authentic record of our own Project Phase-2 work that has been carried out by us during academic year 2021-22 at **Vivekananda** **Institute of Technology,** Bengaluru under the guidance of **DR. C S SHASHIKUMAR**  Associate Professor and Head, Dept. of Civil Engineering, Vivekananda Institute of Technology, Bengaluru.

**Name of the students Signature**

1. MAHADEV PRASAD N M
2. NANDISH U
3. NITHIN M
4. VINAY M SAWANT