

**Dept. Water Resources & Ocean Engineering**  
**(Formerly Dept. of Applied Mechanics & Hydraulics)**

**NITK, Surathkal, Mangalore, Pin: 575 025**

**Applicants called for Ph.D. - Written Test and Interview**

Sl.No.	Reference No	Name of the Applicants
1	PH2021WO0002	MALLURAJ CHANNAPPA HITNI
2	PH2021WO0003	SATIS KUMAR KOLLURU
3	PH2021WO0004	CHAKKKARALLA MAHAMMAD RAFI
4	PH2021WO0005	PADALA RAJA SHEKAR
5	PH2021WO0006	ATHIRA KRISHNANKUTTY
6	PH2021WO0007	SINSHA N
7	PH2021WO0008	PRACHI DEORAO KHOBLAGADE
8	PH2021WO0009	THAMMANNAGARI RAMAKRISHNA
9	PH2021WO0011	SAIPRIYA S R
10	PH2021WO0012	SAGAR DEBBARMA
11	PH2021WO0013	DEGAVATH VINOD
12	PH2021WO0014	NIRUP SUNDAR MANDAL
13	PH2021WO0015	DWARIKA PRASAD
14	PH2021WO0016	PONUGUMATI VIJAY CHARLES
15	PH2021WO0017	MANOJ KUMAR PUJARI
16	PH2021WO0018	SHANKARA KRISHNA A
17	PH2021WO0019	ASHIRBAD MISHRA
18	PH2021WO0022	UPPALAPATI ROHITH KUMAR
19	PH2021WO0023	MOLAKA MARUTHI
20	PH2021WO0024	CHETLAPELLY VAMSHI KRISHNA
21	PH2021WO0025	YERRUPALLI GANESH
22	PH2021WO0026	MANISH KUMAR
23	PH2021WO0027	KIRAN PATIL
24	PH2021WO0028	POOJA PATLE
25	PH2021WO0029	GOSUVARIPALLI MASTHANWALI
26	PH2021WO0030	JITENDRA SHARMA
27	PH2021WO0031	GURUPRASAD T N
28	PH2021WO0033	MUKUL ANAND
29	PH2021WO0034	VINOD P N
30	PH2021WO0035	MALLAVARAPU VINEETH
31	PH2021WO0036	RAKESH KUMAR
32	PH2021WO0037	ANURAG LABH AMAN
33	PH2021WO0038	MALA MANOJ RAJ
34	PH2021WO0039	PRADEEPKUMAR M HODLUR
35	PH2021WO0040	BINOY SEBASTIAN
36	PH2021WO0041	UTSAV KUMAR
37	PH2021WO0042	NANDIKANTI SIVA SAI SYAM
38	PH2021WO0043	DEEPJYOTI DEB
39	PH2021WO0044	VAKA MADAN GOPAL
40	PH2021WO0045	SRUTHY RAJ S
41	PH2021WO0047	CHANDANA A
42	PH2021WO0048	MANJUNATH B
43	PH2021WO0049	SHASHI KUMAR
44	PH2021WO0050	MOHANSING RAJAPUT

45	PH2021WO0051	SHILPA M ATHITHOTTAM
46	PH2021WO0052	ADITYA S
47	PH2021WO0053	SANTHOSH KAMBLE
48	PH2021WO0054	BHARTI PRASAD
49	PH2021WO0055	NEHA DHAPOLA
50	PH2021WO0056	KISHORA
51	PH2021WO0058	PRAKHAR SHARMA
52	PH2021WO0059	MADHUSHREE C
53	PH2021WO0061	VIVEK KUMAR TRIPATHI
54	PH2021WO0062	PREMA MALALI
55	PH2021WO0063	SUBRATA NANDY
56	PH2021WO0064	BARUN KUMAR

*Prasanna*  
28/07/2021

DRPC Chairperson/ Head of the Department

**PROFESSOR & HEAD**

Dept. of Water Resources & Ocean Engineering  
(Formerly Dept. of Applied Mechanics & Hydraulics)  
NITK Surathkal, P.O. Srinivasnagar, Mangaluru-575025




# Dept. Water Resources & Ocean Engineering

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NITK, Surathkal, Mangalore, Pin: 575 025

## General Instructions for the candidates who are appearing for the Ph.D. Written Aptitude Test & Interview:

1. There are two parts (**Part A** and **Part B**) in the Ph.D. written aptitude test. The Part A (Syllabus is attached in Annexure) is compulsory for all the candidates. There will be 15 multiple choice questions in Part A. The Part B is Optional type. In Part B (Syllabus is attached in Annexure), candidates have to select one of their relevant section (Marine Structures OR Water Resources OR RS&GIS) to answer. Each section carries 15 multiple choice questions and each question carries one mark.
2. Mode of the written aptitude test is online. Details of examination will be announced in our Institute's Website (<https://www.nitk.ac.in/>). For further updates, the candidates are requested to visit our Institute's Website regularly.
3. There will be totally 30 multiple choice questions (MCQ) for the Ph.D. Written Aptitude Test. For every question, four options will be given. The candidates are expected to select correct option.
4. Each correct answer carries one mark. Total marks for the test is 30.
5. There is negative marking for wrong answer. For each wrong answer, 0.25 marks will be deducted.
6. Time duration is 60 minutes.
7. The candidates are allowed to use scientific calculators for solving numerical problems.
8. After the written test, the shortlisted candidates will be allowed to attend the technical interview. For the technical interview, the candidates are expected to prepare maximum of 10 PPT slides. The presentation slides should include the present and the proposed research work.
9. **Written Test Date and Time:** August 4<sup>th</sup> 2021, 8.00 AM onwards. **No extra time will be given** and your login page will be closed after the test duration.
10. **Interview Date and Time:** August 4<sup>th</sup> 2021, 2.00 PM Onwards & August 5<sup>th</sup> 2021, 9.30 AM Onwards.

  
DRPC Chairperson/ Head of the Department

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Annexure  
Syllabus for the Ph.D. Written Test

**Paper 1: Marine Structures**

**PART A (Compulsory) – Basic Sciences, Mathematics and Engineering**

**Engineering Mechanics:** System of Forces, Free-Body Diagrams, Equilibrium Equations; Internal Forces in Structures; Plane Truss, Second Area Moment.

**Solid Mechanics:** Bending Moment and Shear Force in Statically Determinate Beams; Simple Stress and Strain Relationships; Simple Bending Theory, Flexural and Shear Stresses, Uniform Torsion, Buckling of Column.

**Fluid Mechanics:** Properties of Fluids, Fluid Statics; Continuity, Momentum, Energy and Corresponding Equations; Potential Flow, Applications of Momentum and Energy Equations; Laminar and Turbulent Flow; Flow in Pipes, Pipe Networks; Concept of Boundary Layer and its Growth.

**Numerical Methods:** Accuracy and Precision; Error Analysis. Numerical Solutions of Linear and Non-Linear Algebraic Equations; Least Square Approximation, Newton's and Lagrange Polynomials, Numerical Differentiation, Integration by Trapezoidal and Simpson's rule, Single and Multi-Step Methods for First Order Differential Equations.

**Calculus:** Functions of Single Variable; Limit, Continuity and Differentiability; Mean Value Theorems, Local Maxima and Minima.

**PART B (Marine Structures) – Core Subject**

**Marine Structures:** Basics of Wave Hydrodynamics, Wave Structure Interactions, Oceanography, Design Aspects of Marine Structures, Port Planning, Marine Geotechnical Engineering.

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**Paper 2: Water Resources Engineering**

**PART A (Compulsory) – Basic Sciences, Mathematics and Engineering**

**Engineering Mechanics:** System of Forces, Free-Body Diagrams, Equilibrium Equations; Internal Forces in Structures; Plane Truss, Second Area Moment.

**Solid Mechanics:** Bending Moment and Shear Force in Statically Determinate Beams; Simple Stress and Strain Relationships; Simple Bending Theory, Flexural and Shear Stresses, Uniform Torsion, Buckling of Column.

**Fluid Mechanics:** Properties of Fluids, Fluid Statics; Continuity, Momentum, Energy and Corresponding Equations; Potential Flow, Applications of Momentum and Energy Equations; Laminar and Turbulent Flow; Flow in Pipes, Pipe Networks; Concept of Boundary Layer and its Growth.

**Numerical Methods:** Accuracy and Precision; Error Analysis. Numerical Solutions of Linear and Non-Linear Algebraic Equations; Least Square Approximation, Newton's and Lagrange Polynomials, Numerical Differentiation, Integration by Trapezoidal and Simpson's rule, Single and Multi-Step Methods for First Order Differential Equations.

**Calculus:** Functions of Single Variable; Limit, Continuity and Differentiability; Mean Value Theorems, Local Maxima and Minima.

**PART B (Water Resources Engineering) – Core Subject**

**Hydrology:** Hydrologic Cycle, Water Budget, World Water Quantities, Precipitation and Abstractions: Forms of Precipitation, Data Analysis, Rain-Gauge Networks; Infiltration – Processes, Infiltration Indices and Horton's Equation; Evaporation and Evapotranspiration – Pan Evaporation, Empirical Equations for Estimating Evaporation and Evapotranspiration; Transpiration; Runoff and

Hydrographs: Rainfall Runoff Relations, Time Area Concept, Flow Duration Curve, Mass Curve, Flow Hydrograph, Unit Hydrograph (UH) and its Analysis.

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### **Paper 3: Remote Sensing & Geographic Information System (Rs & Gis)**

#### **PART A (Compulsory) – Basic Sciences, Mathematics and Engineering**

**Engineering Mechanics:** System of Forces, Free-Body Diagrams, Equilibrium Equations; Internal Forces in Structures; Plane Truss, Second Area Moment.

**Solid Mechanics:** Bending Moment and Shear Force in Statically Determinate Beams; Simple Stress and Strain Relationships; Simple Bending Theory, Flexural and Shear Stresses, Uniform Torsion, Buckling of Column.

**Fluid Mechanics:** Properties of Fluids, Fluid Statics; Continuity, Momentum, Energy and Corresponding Equations; Potential Flow, Applications of Momentum and Energy Equations; Laminar and Turbulent Flow; Flow in Pipes, Pipe Networks; Concept of Boundary Layer and its Growth.

**Numerical Methods:** Accuracy and Precision; Error Analysis. Numerical Solutions of Linear and Non-Linear Algebraic Equations; Least Square Approximation, Newton's and Lagrange Polynomials, Numerical Differentiation, Integration by Trapezoidal and Simpson's rule, Single and Multi-Step Methods for First Order Differential Equations.

**Calculus:** Functions of Single Variable; Limit, Continuity and Differentiability; Mean Value Theorems, Local Maxima and Minima.

#### **PART B (Remote Sensing & Geographic Information System (RS & GIS)) – Core Subject**

**Remote Sensing & GIS:** Energy Sources & Radiation Principles, EMR & Spectrum, Emission, Transmission, Spectral Response Pattern, Components of GIS, Co-ordinate System, MAP Projections, Input Data for GIS, Types of Output, Level & Scale, Data Quality.

  
28/6/2021

**DRPC Chairperson/ Head of the Department**

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