

नेशनल इंस्टीट्यूट ऑफ इलेक्ट्रॉनिक्स एंड इंफॉर्मेशन टेक्नोलॉजी, चेन्नई

National Institute of Electronics and Information Technology, Chennai

Autonomous Scientific Society of Ministry of Electronics & Information Technology (MeitY), Govt. of India

ISTE Complex, 25, Gandhi Mandapam Road, Chennai - 600025

Course Prospectus

Certificate course in NoSQL MongoDB



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Course Prospectus

Name of the Group	:	Data Science
Course Name	:	Certificate course in MongoDB
Duration	:	6 weeks - 120 Hours (04 Hours per Day)
Course Coordinator	:	Sanjeev Kumar Jha, Mobile: 7765803105
Start Date	:	15 - 06 - 2020
Last Date of Registration	:	14 - 06 - 2020

Objective of the Course:

MongoDB is a popular open source database based on NoSQL approach. It is recognized for its speed and flexible since it plays on a document format. This database allows great flexibility to use and store data as it handles documents in a free schema design. This course is valuable for database administrators, database professionals, system administrators, System Analysts, Project Managers and Software Developers/Testers

The **Certificate course in MongoDB** 120 Hours program offered by NIELIT Chennai is an excellent blend of knowledge and practice in the field of NoSQL Database and its industrial applications. The course has been designed after proper industry survey and consultation with multiple industry leaders to ensure that participants learn exactly what employers need.

Outcome of the Course: On completion of the Course, the Participants will learn the concept of NoSQL and MongoDB. They will be able to implement industry-oriented Database management.

Requirements

- ✓ You will need access to a PC/Laptop with an Internet connection.
- ✓ You must have at least 8GB of free RAM on your system.
- ✓ A basic familiarity with the Linux command line will be very helpful.

Course Structure

S.no	Topic	Duration (in weeks) via Online mode
1	Module 1 : Introduction to NoSQL and MongoDB	1 week
2	Module 2 : CRUD operations	1 week
3	Module 3 : Query	1 week
4	Module 4 : Aggregation	1 week
5	Module 5 : Replication	1 week
6	Module 6 : Sharding	1 week
Total		6 weeks

Other Details:

Course Fees: Rs. 2,000/- (Including GST) (Non-Refundable)

However the above Training fee shall be refunded on few special cases as given below:

1. If course postponed and new date is not convenient for the student.
2. If course cancelled

Payment Schedule

The Fee has to be paid in one instalment as given below.

Installment No	Last Date of Payment	Amount (in Rs.)
1	14 - 06 - 2020	Rs.2,000/-

Eligibility

- ✓ M.E./M.Tech/B.E./B.Tech/DOEACC B Level/B.Sc./Any Master Degree with Knowledge of Mathematics/Statistics and Computer Programming.
- ✓ Candidates who have appeared in the final semester examination and awaiting results may also apply. However, they have to submit proof of passing all semester examination/final degree at the time of completion of the course. Otherwise no certificate will be issued.

How to Apply

Candidates can apply online in our website <http://14.139.173.196/reg>. Payment be paid through any of the following modes:

- ✓ Online transaction: Account No: 31185720641 Branch: Kottur (Chennai), IFS Code: SBIN0001669.
- ✓ Pay through Nationalized Bank Debit Card (Service charges applicable)
- ✓ DD drawn from a nationalized bank (preferably SBI) in favour of “NIELIT Chennai” payable at Chennai.

Note: *The Institute will not be responsible for any mistakes done by either the bank concerned or by the depositor while remitting the amount into our account*

Last date of Registration: 14 - 06 - 2020

Selection Criteria of candidates

Selection is based on the first come basis (subject to fulfilling the eligibility criteria)

Admission Procedure

All interested candidates are required to fill the Registration form with the Course fees before 21 - 06 - 2020 with all the necessary following documents.

- Original and self-attested Copies of Proof of Age, Qualifying Degree (Consolidated Mark sheet & Degree Certificate/Course Completion Certificate), etc.
- One passport size photograph and one stamp size photograph for identity card.
- Self-attested copy of Govt. issued photo ID card

Note : Working days are from Monday to Friday.

Discontinuing the course: No fees under any circumstances shall be refunded in case of a student discontinuing the course. No certificate shall be issued if discontinued.

Course Timings: 4 hours online daily (from Monday to Friday) during working hours

Mode of Training: Online

Course Contents:

Introduction to NoSQL and MongoDB

Learning Objective: In this Section candidate will be skilled with introduction of NoSQL and use of MongoDB in NoSQL. They will be able to configure Mongo Server and equipped with basic elements of MongoDB.

Topics:

Introduction: Introduction to NoSQL and MongoDB, Installation of MongoDB and GUI of MongoDB

Basic Data Types: Documents, Collections, Dynamic Schemas, Mongo Shell, Mongo Server and Client, Data Types, Embedded Documents, Creating Configuration file for Mongo.

Creating, Updating, and Deleting Documents

Learning Objective: In this Section candidate will be skilled for adding new documents to a collection, removing documents from a collection, updating existing documents.

Topics: Inserting and Saving Documents, Batch Insert, Insert Validation, Removing Documents, Updating Documents, Document Replacement, Using Modifiers, Upserts, Updating Multiple Documents, Returning Updated Documents.

Query

Learning Objective: In this Section candidate will be skilled with writing Query for MongoDB. After completion of the section participants can perform queries on the database using the find or findOne. They will be skilled for set inclusion, inequalities, cursors etc.

Topics: Introduction to find, Query Criteria, Query Conditionals, Conditional Semantics, Type-Specific Queries, Regular Expressions, Querying Arrays, Querying on Embedded Documents, Cursors, Limits, Skips, Advanced Query Options, Getting Consistent Results Immortal Cursors.

Index, Special Index and Collection Types

Learning Objective: In this Section candidate will be skilled with indexing and its usage. After completion of the section participants will be able to use special indexes and various capped Collections and GridFs for storing images and other large unstructured data.

Topics: Introduction to Indexing, Introduction to Compound Indexes, Using Compound Indexes, Indexing Objects and Arrays , Index Cardinality, Using explain() and hint(), The Query Optimizer, Index Administration, Changing Indexes, Capped Collections, Geospatial Indexing Storing Files with GridFS , Getting Started with GridFS: mongofiles, Working with GridFS from the MongoDB Drivers

Aggregation

Learning Objective: In this Section candidate will be skilled with the aggregation framework and MapReduce techniques in MongoDB

Topics: The Aggregation Framework, Pipeline Operations, \$match, \$project, \$group, \$unwind, \$sort, \$limit, \$skip, Using Pipelines, MongoDB and MapReduce, Aggregation Commands.

Replication

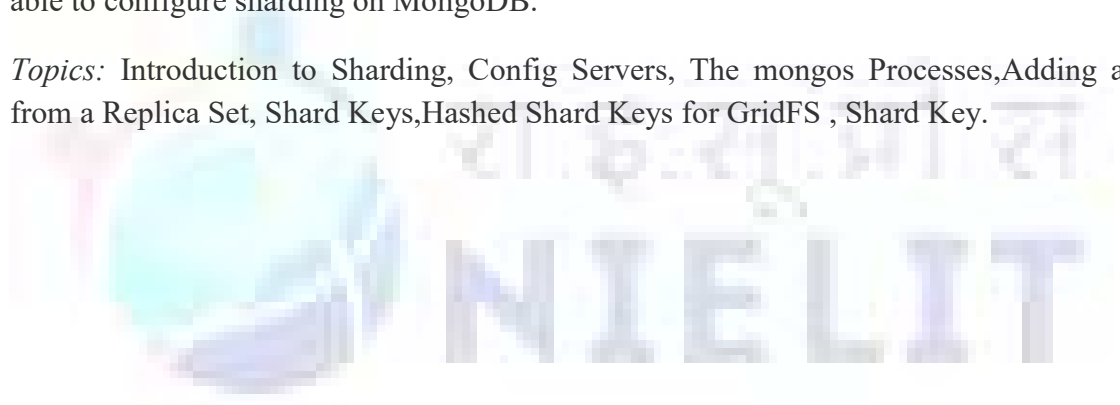
Learning Objective: In this Section candidate will be skilled with the configuration of replica server on MongoDB. After completion of the section participants will learn replica management on MongoDB.

Topics: Introduction to Replication, Configuring a Replica Set, Networking, Elections, Member Configuration Options, Creating Election Arbiters, Priority, Heartbeats.

Sharding

Learning Objective: In this Section candidate will be skilled with introduction and importance of sharding in MongoDB. After completion of the section participants will be able to configure sharding on MongoDB.

Topics: Introduction to Sharding, Config Servers, The mongos Processes, Adding a Shard from a Replica Set, Shard Keys, Hashed Shard Keys for GridFS, Shard Key.



Location and how to reach: NIELIT Chennai is located at Gandhi Mandapam Road, Kotturpuram, Chennai (Landmark: Opp. To Anna Centenary Library).



Address:

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E-mail: trng.chennai@nielit.gov.in/Phone: 044-24421445
Contact Person: Sanjeev Kumar Jha, Mobile: 7765803105

Course enquiries

Students can enquire about the various courses either on telephone or by personal contact between 9.15 A.M. to 5.15 P.M. (Lunch time 1.00 pm to 1.30 pm) Monday to Friday.