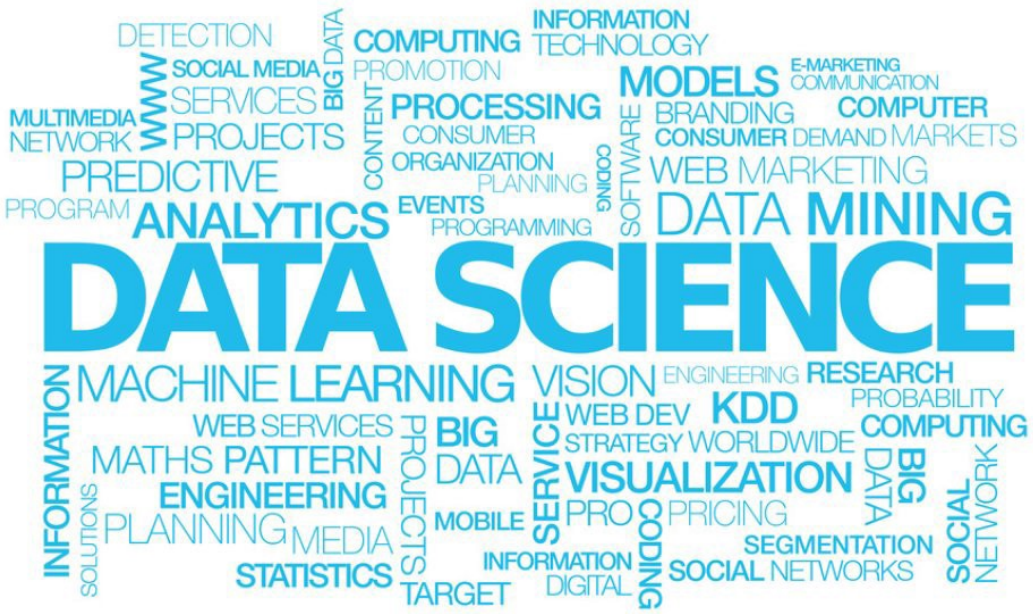
नेशनल इंस्टीट्यूट ऑफ इलेक्ट्रॉनिक्स एंड इंफॉर्मेशन टेक्नोलॉजी, चेन्नई
National Institute of Electronics and Information Technology, Chennai
Autonomous Scientific Society of Ministry of Electronics & Information Technology (MeitY), Govt. of India
ISTE Complex, 25, Gandhi Mandapam Road, Chennai - 600025

Course Prospectus

Advance Diploma in Big Data Analytics



Course Prospectus

Name of the Group: Data Science

Course Name: Advanced Diploma in Big Data Analytics

NSQF Level: 07

Course Code: DS400

Duration: 480 Hours, 12 Weeks (08Hours per day)

Last Date of Registration: 04-02-2020

Display of Provisional Selection List: 05-02-2020

Payment of first instalment fee: 19-02-2020

Counselling & Admission: 19-02-2020

Start Date: 20-02-2020

Preamble:

In today's world there is data available in abundance from variety of sources like web server logs, social media, and large databases and from diverse domains like Ecommerce, Medical, Scientific etc. Big data analytics is the process of examining these data to uncover hidden patterns, unknown correlations and other useful information that can be used to make better decisions. Business people, Doctors, Scientists etc. can use this to improve their services. The main challenge to the analysis of big data comes because of the 4 V's– volume, velocity, variety and veracity. For effective analytics, we need to deal with high volume of data of different variety which is being generated in high velocity. The data what is available from such sources is highly unstructured which calls for analytics on the same.

Objective:

The objective is to make the participants capable of identifying and applying appropriate techniques and tools to solve problems in managing huge quantity of data.

Outcome of the Course:

After undergoing this course the participants will become data engineers who can perform analytics operations on data using various tools. They can develop, maintain and evaluate Big Data and machine learning solutions for organizations.

Couse Structure: (For detailed syllabus Annexure-1)

Sl. No	Module	Duration
1	Linux	01 Week (40 Hours)
2	Java Programming	01 Week (40 Hours)
3	Big Data concepts, Hadoop and MapReduce	02 Weeks (80 hours)
4	Hive, Pig, Sqoop, Flume, Hbase, Spark	01Week (40 Hours)
5	R Programming	02 weeks (80 Hours)
6	Python Programming	02 Weeks (80 Hours)
7	Machine Learning (using R, Python, Spark)	01 Weeks (40 Hours)
8	Project	02 Weeks (80 Hours)
	Total	12 Weeks (480 Hours)

Registration Fee *(Non-refundable): Rs.500/-*

SC/ST: No registration fee

Eligibility:

ME/MTech/BE/BTech/MSc/BSc / 3-year Diploma in (IT/Computer Science/Electronics), MCA/BCA /Degree holders with PGDCA or DOEACC A or B level or equivalent to any of these with good computer programming knowledge.

How to apply:

Candidates can apply online in our website http://14.139.173.196/reg. Payment towards non-refundable registration fee can 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: 21st January, 2020

Number of Seats: 30 (Thirty) - Total

Selection Criteria of candidates

The selection to the course shall be based on the following criteria:

Selection of candidates will be based on the basis of their marks in the qualifying examination subject to eligibility and availability of seats.

Discontinuing the course

- ✓ No fees (including the security deposit) under any circumstances, shall be refunded in the event of a student who have completed the process of admission or discontinuing the course in between. No certificate shall be issued for the classes attended. Only Grade Sheet will be issued.

Fee Payment

- ✓ **Total Fee: Rs. 40,000/-** (Rupees Forty thousand only including GST, Tuition Fee: Rs. 33,898/- GST: Rs. 6,102/-).
- ✓ **For SC-ST**: No Fee
- ✓ **Security Deposit for SC-ST Candidates:** Rs. 4,000.00 (Refundable without interest after successful completion of the course)
- ✓ **Payment Schedule:** The Fee is to be paid in one installment as given below:

Installment No	Last Date for payment	Amount (In Rs.)
1	19-2-2020	40,000.00

Payment Mode

- ✓ Online transaction: Account No: 31185720641 Branch: Kottur (Chennai), IFS Code: SBIN0001669.
- ✓ 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

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

Address:

National of Electronics and Information Technology
ISTE Complex, No. 25, Gandhi Mandapam Road, Chennai – 600025
E-mail: trng.chennai@nielit.gov.in/Phone: 044-24421445
Contact Person: Sanjeev Kumar Jha, Mobile: 7765803105

Examination & Certification

- ✓ Certification Body: Examination Section, NIELIT Chennai
- ✓ Certificate will be issued after successful completion of the course including mini project. At least 75 % marks are essential for appearing in examination. Examination scheme for is as follows:

Examination (As per NSQF Norms)

Theory (130)

- ✓ **Mode**: Online and Multiple-Choice Question
- ✓ **Total Marks: 130**
- ✓ **Number of Questions:130**
- ✓ **Duration: 1½** Hour

Practical (720)

- ✓ **Total Marks**: 720
- ✓ Project: 700
- ✓ Viva: 20

Class Performance & Viva (150)

- ✓ **Class Performance :35**
- ✓ **Attendance:40**
- ✓ **Viva: 75**

Grading Scheme

Following Grading Scheme (on the basis of total marks) will be followed:

Grade	S	A	B	C	D	Fail
Marks Range (in %)	85 to 100	75 to 84	65 to 74	55 to 64	50 to 54	Below 50

Duration:

Date :05-02-2020 To 05-05-2020

Total Hours: 480 Hrs

Total Weeks: 12 Weeks

Total Hours per day: 8 Hrs/Day

Timing: 9:30 AM to 5:30 PM

Venue & lab: NIELIT, Chennai Centre

Course in-charge:

Sh. Sanjeev Kumar Jha,
Joint Director,
skjha@nielit.gov.in
Phone: 044-24421445
Mobile: 7765803105

ANNEXURE -1
Detailed syllabus:

Name of the Group: Data Science

Course Name: Advanced Diploma in BigData Analytics

Course Code: DS400

Module No	Topic	Details
1	Linux concepts, Java programming	Linux environment, commands, built-in tools for data analysis. Java programming in Linux-Basic ,Arrays,Class,Object,OOPS concepts ,Collections .
2	BigData concepts, Hadoop and MapReduce	Hadoop Architecture and HDFS, Mapreduce Architecture with examples, YARN Architecture, nosql databases with examples,
3	Hive, Pig, Sqoop, Flume, Hbase,Spark	Transferring data with Sqoop, data ingestion into Hadoop with Flume, Familiarization of Spark, Mllib and machine learning, Oozie, HBase, Hive and HiveQL, Pig, Distributed processing on a Cluster, Integrating R and Hadoop
4	R Programming	Setting up R environment, Variables, Data Types - Vectors, Factors, Lists, Matrices, Arrays, Data Frames, Subsetting. Control Structures, Functions, Debugging tools,. Reading data – Text, CSV, HTML, JSON, MySQL. Grouping functions-apply, lapply, sapply, mapply. Data visualization - barplot, pie, scatterplot, histogram, scatter matrix, ggplot. Statistical Analysis of data-Summary Statistics, Tabulation methods. Probability distributions in R- Normal distribution, Poisson distribution, Binomial distribution. Correlation and Regression, Hypothesis Testing, Graph visualization using igraph, Developing GUI with Shiny.
5	Python Programming	Python -features, program execution, data structures, List, Dictionary, Tuples, If statements, looping and loop control statements, Functions and Modules, Generators, import statement, namespaces-packages, Class concepts, Exception handling, Regular Expressions, Database access, XML parsing, Python for data analytics – using

		numpy, matplotlib and pandas,scipy, sci-kit learn .
6	Project	Students are required to develop software in any of the areas covered in the course under the guidance of the faculty. Students can also take up relevant projects from the industry.