

**(Abstract)**

Modified Regulation, Scheme and Syllabus of Post Graduate Diploma Programme in Data Science and Analytics (PGDDS) - w.e.f the academic year 2022-23- Implemented-Orders issued.

---

**ACADEMIC C SECTION**

Acad/C5/PGDDS/2020

Dated: 12.05.2022

---

- Read:-1. U.O No. Acad/C5/PGDDS/2020 Dated 08.04.2021.  
2. U.O No. Acad/C5/PGDDS/2020 Dated 31.03.2022.  
3. Minutes of the meeting of Department Council, Department of Information Technology, Mangattuparamba Campus held on 07.01.2022, 24.02.2022 & 25.03.2022.  
4. Letter No. DIT/PGDDSA Regulations/2022 Dated 30.03.2022, from the HoD, Department of I T

**ORDER**

1. As per paper read (1), the Regulation, Scheme and Syllabus of the Post Graduate Diploma Programme in Data Science and Analytics (PGDDS) under Department of Information Technology, Kannur University, Mangattuparamba campus was implemented w.e.f 2020 admission and certain modification were effected to the same, as per the paper read (2) above.
2. As per paper read (3) above, the meeting of the Department Council, Department of Information Technology, Mangattuparamba Campus, held on 07.01.2022, 24.02.2022 & 25.03.2022 resolved to approve the updated Regulation/Syllabus of the Post Graduate Diploma in Data Science and Analytics (PGDDS) programme with effect from the academic year 2022-23 with the following modifications.
  - a) Modification of Elective courses.
  - b) Modification of the Syllabus for Core Course PGDDSC02, PGDDSC03 and PGDDSC05.
  - c) Modification in the Eligibility Criteria by permitting B.Tech/B.E and 4 year B.A/B.Sc Honours Degree (with mathematics course at Plus Two Level) to apply for admission to the course.
3. As per paper read (4), the Head, Department of Information Technology, forwarded the updated Regulation/Syllabus of the aforementioned programme, for approval from the University, w.e.f the academic year 2022-23 .
4. The Vice-Chancellor, after considering the matter in detail and in exercise of the powers of the Academic Council conferred under section 11 (1) Chapter III of Kannur University Act 1996 accorded sanction to implement the modified Regulation/Syllabus of the Post Graduate Diploma in Data Science and Analytics (PGDDS) programme under the Department of Information Technology, Mangattuparamba Campus, Kannur University, with effect from the academic year 2022-23, subject to reporting to the Academic Council.
5. The modified Regulation, Scheme and Syllabus of Post Graduate Diploma in Data Science and Analytics (PGDDS) programme, implemented with effect from the academic year 2022-23 are appended and uploaded in the University website-[www.kannuruniversity.ac.in](http://www.kannuruniversity.ac.in).

6. The U.O read as paper (1) & (2) above stands modified to this extent.

Orders are therefore issued accordingly.

Sd/-

**BALACHANDRAN V K**  
**DEPUTY REGISTRAR (ACAD)**  
For REGISTRAR

To: 1. The Head, Department of IT  
Mangattuparamba Campus  
2. Course Co-Ordinator, Department of I.T, Dr. P.K Rajan Memorial Campus

Copy To: 1. The Examination Branch (through PA to CE)  
2. PS to VC/PA to PVC/PA to R/PA to FO  
3. The web Manager (For uploading in the web site)  
4. DR/AR I & II Academic / EXC-I Section  
5. SF/DF/FC.

Forwarded / By Order

*[Signature]*  
SECTION OFFICER





**KANNUR UNIVERSITY**

**POST GRADUATE DIPLOMA IN DATA SCIENCE & ANALYTICS**

**(Credit Based Semester System)**

**Regulations, Curricula, Syllabus and Scheme of Evaluation**

**(With Effect from 2022-23 admission)**

**1. Introduction**

Data Science and Artificial Intelligence are two prominent domains that are going to rule the entire world in the future decades. Currently, these domains are being used in many real-life applications like Business, Commerce & Banking, GIS, Health, Climate change, Automobile, Crime analysis, etc. The key ideas of Artificial Intelligence and Data Science are mainly used for identifying and making predictions on unseen information hidden in the enormous data available in real-world applications. Using these techniques, one can identify and analyze those relevant data and make predictions of the future of data. Prediction can be made by analyzing in the form of patterns hidden in the original data, and further, it can be utilized for the benefit of society by applying various mathematical and statistical tools that are available. Since one has to deal with a huge amount of data and information, ordinary database applications cannot deal with them easily. The significance of Big Data analysis and Machine Learning comes here. The Deep Learning mechanism as part of Machine Learning provides the capability of identifying the unseen information that normally one cannot identify/retrieve through the conventional SQL query processing. Data mining and data warehousing techniques are the important mechanism for storing and managing the mass amount of data that comes in different styles and format which replicates the real-world scenario and provide a rich set of tools and techniques for extracting the most relevant information for making the prediction of the data with the help of Artificial Intelligence that conventional database management system cannot do.

The future job market needs people who possess technical knowledge and programming skills in dealing with these techniques, and many conventional programming techniques are getting obsolete with the advent of these new methods. The conventional courses are presently dealing with foundation courses and specialized mainly in the standard programming concepts. A few

institutions may be offering one or two electives during their course of study without dealing with practical aspects of the domains that will not be sufficient for them to fetch a job in the current industry.

Kannur University is offering a specialized Data Science course by the joint venture of three departments like Information Technology, Mathematical Science, and Statistical Science in a single umbrella to build up practically talented manpower capable of handling solutions to such complex real-world problems. In the present scenario, there are two types of professionals to be evolved for handling Data Science related problems as Data Analysts and Data Scientists. The practical aspects of analyzing and interpreting the data are done by the Data Analyst and Data Scientist who carry out building mathematical and statistical models for dealing with complex data by the Data Analyst. We are confident that the joint venture of these three departments will achieve this target without any ambiguity. Another important highlight of this course is that we give more stress on the development of practical skills to the students in the related domain rather than conventional evaluation system followed for other PG courses in the University. The course is offered in the pattern of 60-40. The 60% of the evaluation is in continuous assessment and 40% in external evaluation patterns. Another important aspect of the course is that Information Technology, Mathematics, and Statistics departments are situated in a single building neighbor to each other will make the smooth and fruitful running of the course.

Initially, the Department of Information Technology will initiate a one-year Post-Graduate diploma course from the academic year (2020-2021) with inputs from MCA/ M.Sc. Computer Science/M.Sc. Information Technology/ M.Sc. Bioinformatics /M.Tech. /M.Sc. Mathematics/M.Sc. Statistics/ M.Sc. Applied Mathematics/ MSc. Physics/M.Sc. Electronics/M.Sc. Geology/M.Sc. Geography/M.Sc. Biostatistics/M.Sc. Applied Statistics/M.A Economics/ B.Tech (All branches)/ B.E (All branches)/ MBA/ 4 year B.A/B.Sc (with mathematics course at Plus 2 Level) honors degree. After establishing and stabilizing this PG program the University can think of starting a full-fledged PG program for Data Science.

### **1.1 Objective of the Course**

**The Post Graduate Diploma in Data Science & Analytics** is a one-year program offered by the School of Information Science & Technology in collaboration with the Department of Mathematical Science, and Statistical Science is an excellent blend of knowledge and practice in the field of Data Science and its industrial applications. The program is targeted for creating qualified Data Science professionals. The program also offers ten weeks of industry-oriented hands-on, real-life analytical projects for students to get equipped with strong analytical and programming backgrounds, which makes them highly competitive and employable on completion of the program.

### **1.2 Outcome of the Course**

Upon completing the course, the participants will learn the concept of Data Analytics using open-source statistical tools like R, Python, Hadoop, Tableau, and some excellent visualization tools and techniques. They will be capable of implementing the industry-oriented Data Analytics Project.

### **1.3 Duration of the Course**

Duration of the Post Graduate Diploma in Data Science shall be one (01) year- full-time course divided into 2 semesters. Each semester should have 18 weeks. The maximum time limit for completing the course is four semesters (two years)

### **1.4 Number of Seats:**

This course has an intake of **25** seats per semester and filling of seats according to the rotation matrix-maintained time-to-time by the Department of Information Technology/Kannur University norms. The rotation matrix of the seats to the course will be announced at the time of notification of the program. The course will run only if a minimum of 80% of the total seats are filled.

### **1.5 Course Structure**

This course contains a total of seven modules in the first semester and two modules in the second semester followed by 300 hours of real-time project work using any of the topics studied to earn the Diploma. All these components are mandatory for the completion of the

course. The course comprises 30 Hours (5 × 6 Hours) per week comprising 18 weeks of teaching and learning activities.

### 1.6 Eligibility

MCA/ M.Sc. Computer Science/M.Sc. Information Technology/ M.Sc. Bioinformatics/M. Tech.(Computer Science, Electrical & Electronics and Allied branches)/M.Sc. Mathematics/M.Sc. Statistics/ M.Sc. Applied Mathematics/ MSc. Physics/M.Sc. Electronics/M.Sc. Geology/M.Sc. Geography/ M.Sc. Biostatistics/M.Sc. Applied Statistics/M.A Economics/ B.Tech (All branches)/ B.E (All branches)/ MBA/ 4 year B.A/ B.Sc. (with mathematics course at Plus 2 Level) honours degree of this University or any other University / Institution, recognized by this University as equivalent thereto, with a minimum aggregate of 55% marks or equivalent grade.(For SEBC and Physically Challenged candidates the aggregate marks required is 50%. For SC and ST, a minimum pass in the degree examination)

### 1.7 Selection Criteria of the candidates

The selection of the course shall be based on a common admission test conducted by Kannur University. The test will be the duration of two hours comprising 100 × 4 marks multiple-choice questions from Computer Science, Mathematics, Statistics and Aptitude & Mental ability in under a graduate level. The pattern of the question paper shall be as follows:

Sl.	Subjects	No. of Questions
1	Mathematics	25 × 4 = 100
2	Statistics	25 × 4 = 100
3	Computer Science	25 × 4 = 100
4	Aptitude & Mental ability	25 × 4 = 100
	Total	100 × 4 = 400
	<b>Each Right answer will be awarded 4 Marks</b>	
	<b>Each Wrong answer will be awarded -1 Mark</b>	

### 1.8 Course Fee Structure

Sl.	Fee Details	Amount in Rs./-
1	Registration fee ( <b>Application Fee</b> )	1,000/-
	For SC/ST	500/-
2	Admission Fee	555/-
3	Tuition Fee ( <b>Per Semester</b> )	14,000/-
4	Laboratory Fee ( <b>Per Semester</b> )	6,000/-
5	Library Fee	325/-
6	Student Welfare fund*	360/-
7	Special fee	125/-
8	Caution Deposit ( <b>Refundable</b> )*	1,000/-
9	Student Affiliation Fee	440/-
10	Sports Affiliation Fee	220/-
11	University Union Fee	110/-
12	University Development Fund	60/-
13	Department Development Fund*	1000/-

(\* To be paid to the HOD account)

### 1.9 Placement

This program is scheduled under an industrial collaboration and the experts from different industries and academia have agreed to handle different sessions to the course to build thorough practical knowledge to the students and provide placement assistance to students who successfully qualify the course with the mandate required for the industry.

## 2 Program Structure

### 2.1 Attendance



The minimum attendance required for each course shall be 75% of the total number of classes conducted for each semester. Those who secure the minimum attendance in a semester alone will be allowed to register for the End Semester Examination. The Vice-Chancellor will grant condonation of attendance to a maximum of 10 days in a semester subject to a maximum of two spells within a program. The benefit of condonation of attendance will be granted to the students on health grounds, for participating in University Union activities, meetings of the university bodies, and participation in extracurricular activities on the production of genuine supporting documents with the recommendation of the Head of the Department concerned. A student who is not eligible for condonation shall repeat the course with the subsequent batch.

### **2.2 Credits**

One credit of the course is defined as a minimum of one-hour lecture or a minimum of 2 hours lab/tutorial per week for 18 weeks in a Semester. The minimum number of credits required to complete the Post Graduate Diploma in Data Science & Analytics (PGDDSA) program is 42.

### **2.2 Seminar**

Each student should select a relevant topic and prepare a seminar report, under the guidance of a faculty member. Students should prepare an abstract of the topic and distribute it to every faculty member at least two weeks ahead of the seminar. The presentation shall be for a minimum of 30 minutes in duration. Presentation and seminar report will be evaluated by a group of at least two faculty members (Mark distribution:50%for report and 50% for presentation and discussion).

### **2.3 Assignments**

Each student shall be required to submit a minimum of three assignments for each course. The details such as the number of assignments, mark distribution, and the weightage for each assignment will be announced by the faculty in charge of the course at the beginning of the semester.

### **2.4 Tests**

A minimum of two class tests will be conducted for each course. The details such as the number of tests, mark distribution, and weightage for each test will be announced by the faculty in charge of the course at the beginning of the semester.



## **2.5 Seminar / Viva-voce / Case studies / Lab assignments**

The faculty in charge of the course shall design the evaluation pattern based on one or more of these components and will be announced at the beginning of the semester.

## **2.6 Evaluation**

Evaluation of the students shall be done by the faculty member who handles the course based on continuous evaluation and End Semester Examination. The proportion of the distribution of marks, including CE (Continuous Evaluation) and ESE (End Semester Examination) shall be 60-40.

### **2.6.1 Continuous Evaluation (CE)**

Continuous Evaluation (CE) of a course shall be based on periodic written tests, assignments, and Seminar / Viva-voce / Case studies/Project work/Attending workshops/Participating and presenting papers in Conferences/Publishing articles in Journals/Proceeding, etc. in respect of each course.

#### **Components of Continuous Evaluation (Theory)**

<b>Sl</b>	<b>Component</b>	<b>Marks</b>
1	Seminar	10
2	Assignments	10
3	Internal tests	20
4	Implementation and viva	20
	<b>Total</b>	<b>60</b>

#### **Components of Continuous Evaluation (Practical)**

<b>Sl.</b>	<b>Component</b>	<b>Marks</b>
1	Record Work/Lab Assignments	10

2	Implementing the experiment in the Lab	35
3	Viva-voce	15
	<b>Total</b>	<b>60</b>

### **2.6.2 Evaluation of Practical courses**

The details regarding the CE as well as ESE for each practical course will be specified as part of the syllabus for the course.

### **2.7 End-Semester Evaluation (ESE)**

All odd semester examinations will be conducted by the Head of the Department and even semester examinations will be conducted by the Controller of Examination, Kannur University. To conduct the end-semester examination, the Head of the department shall submit a confidential panel of examiners not less than ten experts from the outside of the Kannur University duly approved by the department council for the approval of the Vice-Chancellor. All teachers who engage in classes on the course except industrial experts will be members of the Board of Examiners (BoE) with the Head of the Department as the chairman of the BoE. All the faculty in charge of the course shall prepare and submit three (03) unique sets of question papers for their course in odd semester well in advance to the Head of the department for the conduct of End Semester Examination of the respective batch. The Head of the department shall conduct a scrutiny meeting of the above question papers submitted by the concerned faculty by inviting at least two external experts from the list approved by the Vice-Chancellor. The even semester examination question papers for the elective courses shall be set by the Controller of Examination by selecting the external experts of the question paper setters approved by the Vice-Chancellor. The Head of the department shall submit the detailed syllabus, model question papers of the elective courses offered in the even semester to the Controller of Examination along with the panel of experts duly approved by the Vice-Chancellor for setting the question papers to those electives soon after the commencement of the course.

#### **2.7.1 Pattern of question papers and evaluation criteria for (ESE)**