**Important Dates**

* Admissions Website Open  **22 Feb 2021**
* Last Date for Application  **31 Mar 2021**
* Online Aptitude Screening Test  **May 1-8, 2021(One day to be decided)**
* Online Oral Interviews **May 17 – 21, 2021**

**Application Eligibility**

* B.E./B. Tech. or equivalent degree in any discipline, *or*
* M.Sc. or equivalent degree in Mathematical Sciences, Physical Sciences, Electronics, Instrumentation, Computer Science, *or*
* Masters in Computer Application or Graduates of 4-year Bachelor of Science programmes (B.S).
* **GATE/NET JRF** score is required for students with a BE/BTech/B.S/M.Sc./MCA.
* GATE/NET JRF is not required for students with a B.E./B.Tech/B.S. from **Centrally Funded Technical Institutions (IIT/IISER/NIT, etc.)**, with a minimum CGPA of **8.5** out of 10 applying for a Ph.D.
* Students with a B.E./B.Tech/B.S. are eligible to apply for a **direct Ph.D.**This is encouraged.
* Complete details are on the [**IISc admissions page**](https://iisc.ac.in/admissions/research-programmes/#targetname|ffs-tabbed-21|ffs-tabbed-119).

**Overview of the Admission Process**

Research activities at the Department of Computational and Data Sciences (CDS) are categorized into two streams: *Computational Science (CDS-CP)* and *Computer and Data systems (CDS-CS)*. The admissions process is common to both the streams.  The admission process for the Aug 2021 cycle comprises two phases. Phase I will be an **online aptitude test** on the HackerEarth platform, which serves as a screening test and Phase II will be an **online oral interview** only for the candidates qualified in the aptitude test conducted in Phase I.

Candidates shortlisted for the **online aptitude test** (Phase I) will receive a call letter email from IISc with the date and the session for your test. This online aptitude test is of duration 90 minutes, which will serve as a screening test. This will have multiple choice and programming questions.  You will also receive an email from the CDS department about the online test instructions such as the test link, rules, guidelines, practice test, etc.

The Phase II ***online oral interview*** is for shortlisted students based on the online aptitude screening test conducted in Phase I. Students who qualify in this screening test will be informed about their oral interview date and time by an email, along with a link to the interview. This oral interview will be through video conferencing with a panel of CDS faculty using Microsoft Teams. The interview can last up to 45 minutes. The performance of the candidate in the online interview will contribute to their overall interview marks. The syllabus for the test and the interview is given below.

About a week before the oral interview, the shortlisted candidates will be sent an email from the CDS department to fill an **online student information Google form**. This must be completed and submitted in order to participate in the oral interview. As part of this, they should choose up to three labs for which they will be considered. Labs accepting students for Aug 2021 are given below and more details about the requirements for these labs will be described in the CDS Admission brochure to be uploaded soon.

**Online Aptitude Screening Test**

The Phase I online objective and programming test will be conducted using the HackerEarth online platform. Candidates will need a **desktop/laptop with an internet connection, Chrome, Firefox or Safari browsers, and a webcam**. Candidates will be sent an email with a link to the online test a few days before the test date. The test will be enabled at the start of your session and will last for **90 mins.** It has to be completed in a single sitting. You will need to create a **free HackerEarth account** to take the test. You MUST use the **same email address** as the one used for your IISc Admissions Application. Please do this ahead of time. That email will also have another link to let you take a **practice test**, to test your browser and webcam, and get familiar with the HackerEarth platform. These practice questions are not from the test syllabus. Candidates may take the practice test as many times as they want. Candidates should get familiar with the programming IDE, compilation and testing interface of HackerEarth to ensure that the programming questions are attempted properly.

The online objective test will have 9 questions. There will be 7 multiple choice questions (each carrying 5 points) and 2 programming questions (with 5 and 10 points). The **topics**for the objective test are:

* Combinatorics, Linear Algebra/Matrices, Probability and Statistics, Differential Equations, Plotting, Data Structures and Algorithms.

The programming languages that you can use are **C, C++** and **Java**. The HackerEarth interface will allow you to type the program, compile it and run test cases, all within the browser. We will provide a basic code template for reading and writing the inputs and outputs for each problem. The candidates should focus on the actual code logic, and brush up on concepts such as if/then/else conditions and for loops.  Students are encouraged to first solve the problems that they are comfortable with and then move on to more difficult problems.

**Online oral Interview over Video Conference**

Students who qualify in the online screening test will attend an oral interview over a video conference before a CDS faculty committee. We will use **Microsoft Teams**. Details will be provided separately over an email with a link to join and the date and time of the interview session. In the oral interview, you will be questioned on the following basic topics, and on advanced topics that are based on your lab preferences:

***Basic Topics***: Linear Algebra; Probability & Statistics; Programming, Data Structures, Algorithms; Numerical Methods; Ordinary Differential Equations; Discrete Mathematics.  Final year undergraduate level preparation is required.

***Advanced Topics:***You will be questioned on the topics related to labs selected in the student information Google form. The topics for each lab and the prior training expected are listed below. Candidates choosing a lab must be prepared on *at least one* of the lab-related interview topics.

**Note:** Most labs give preference to applicants for the Ph.D. program over the M.Tech (Research) program. Some labs may not even take any students for the M.Tech (Research) program. Students with a B.E./B.Tech. degree are also eligible to apply for the Ph.D. program.

Candidates for the Ph.D. program should prepare well on their fundamentals, come with a focus and knowledge of the research areas they would like to target in their PhD, and have a clarity on the preferred lab(s) and the kind of work done in them. Review the research topics and the papers from the labs you are interested in.

List of labs that are admitting students for Aug 2021 :

(1) [**Computational Mathematics Group (CMG)**](http://cds.iisc.ac.in/faculty/sashi/)

(2) [**Computational & Statistical Physics Lab (CSPL)**](http://cds.iisc.ac.in/faculty/murugesh/)

(3) [**Biomolecular Computation Laboratory**](http://pallab.serc.iisc.ernet.in/lab.php)

(4) [**Database Systems Laboratory**](https://dsl.cds.iisc.ac.in/~haritsa)

(5) [**DREAM:Lab (Distributed systems Research on Emerging Applications & Machines)**](http://cds.iisc.ac.in/faculty/simmhan)

(6) [**FLAME:Lab (FLow Analysis and Multi-physics simulations at Extreme-scale)**](http://cds.iisc.ac.in/faculty/konduriadi/)

(7) [**MATRIX:Lab (Materials-physics & Algorithmic Techniques Research In eXtreme-computing)**](http://cds.iisc.ac.in/faculty/phanim/)

(8) [**MARS:Lab (Middleware And Runtime Systems)**](http://mars.cds.iisc.ac.in/)

(9) [**Video Analytics Lab (VAL)**](http://val.cds.iisc.ac.in/)

(10) [**Visual Computing Lab (VCL)**](http://visual-computing.in/home/)

(11) [**Cloud Systems Lab (CSL)**](http://www.serc.iisc.ac.in/faculty/jlakshmi/cloud-system-lab)

(12) [**Algorithmic Techniques for Computational Genomics (ATCG) Lab**](http://cds.iisc.ac.in/faculty/chirag)