

## AZEOTROPY 2019

# Chemathon Instructions

*Registration deadline till 11:59 p.m., 15th February, 2019.*

## Motivation

Being a chemical engineer (or scientist) involves a life-long quest of learning. In this profession we constantly **learn new ideas** and try to better ourselves. Our increasing reliance on the digital world means that to succeed we all need to be aware of the latest technology. **Computing** is an important part of chemical engineering and all chemical engineers are trained to be numerate, IT literate and develop new technologies.

In a position paper specifying a particular set of **computing competencies** that all chemical engineering **graduates** should possess the **main recommendations** from the body of the report are as follows:

1. The chemical engineering graduate must have experience in the **computer-aided acquisition** and processing of information.
2. It would be desirable for the student to have an appreciation of principles of **numerical analysis** (including convergence and stability) and non-numeric programming (such as used in artificial intelligence).
3. Understand the implementation of **elementary algorithms** for the numerical solution of engineering problems.
4. Be able to solve more **sophisticated engineering problems** using appropriate applications software.
5. Be familiar with software for computer-aided process design and analysis.
6. Have experience with computer-based instrumentation, process control, data collection, and analysis.



AZeotropy, Department of Chemical Engineering,  
IIT Bombay, Powai-Mumbai-400076



[www.azeotropy.org](http://www.azeotropy.org)

## Aim

The problems for this competition are derived from **various areas** of undergraduate chemical engineering requiring **numerical, analytical and coding** skills for you to be able to analyze concepts involved in them and provide a **good theoretical estimate**.

## Team specification

1. A **maximum of 2 participants** are allowed per team.
2. Students of different institutions can also form a team.
3. At least **one team member** must be from Chemical engineering background.
4. Teams should first register and get a **unique Team ID, passcode and registration number** exclusive for this competition.  
Register at: <https://azeotropy.org/2019/competitions/chemathon>
5. No participant can register in **more than** one team. In such an instance, both the teams will be subjected to disqualification.

## General Rules

1. This Competition consists of **2 rounds**.
2. **Round 1** will consist of **4 questions** to be solved **within 24 hrs**. And will amount for **cumulatively 60 marks**.
3. You need to **first register** for Round 1 **by 15-02-2019** and get your access passcode. Round 1 will be **held online** and the link will be made active on a weekend and all the registered participants **will be informed** about the link and other details two days prior via Email.
4. On the Online link portal you will be asked to **provide specific parameter values** in the question. The portal will give you a **positive or negative feedback** based on these parameter values **via a leader board** arranged according to the registration numbers provided to you during registration.  
The feedback would be positive if the parameter value asked is within **some range of expected answer** and serves as a feedback for your code so that if the concerned value asked is way off you could **rework** on your program or concept.



**It's mandatory** to provide the asked value in each question as your final code (which you are required to submit) generates.

5. On the portal you are asked to provide a common **ZIP file** designed as follows:

It should have a **base folder named <C\_TEAM-ID>** this folder should **contain 4 folders** namely question 1, question 2, question 3, question 4.

In the respective question folder you **must include your main files** and all **subsidiary files** required by your program to solve the given problem.

Moreover, each of these question folders **must also include a pdf file named README** regarding that question which **describes briefly** the concept used to solve the problem, equations and other mathematical modeling or setup required to solve the problem, and

**notes on how to process your codes** in order to see your code working(e.g.: In which order we must run the files, what initial inputs we are required to fill if asked to enter any user specific values during the course of your code processing, etc.)

6. You can use only **Turbo C++ 3.2/Python 3/Matlab 2015/GNU Octave 4.4.1/MS Excel 2007** to solve the problem. Your code must be written following **basic ethics i.e.**

must have **clear comments** wherever required, using **meaningful variable names**, comments **describing** the use of **predefined function** from the libraries used in solving the problem, If some function is created by you comments must include the **nature of inputs and output** for the function, also provide clear comments to **help us understand** the ideas and functionality of your codes.

7. For every question Marks are assigned along it of which **your Code** accounts for **6 Marks** and **README file** for **4 Marks**. The remaining marks are assigned to the specific values asked in the question.

**Note : It's mandatory to provide specific parameter values asked in the problem and also please note that you are not going to be selected just based on getting these parameter values right you have to invest time on README file and code.**

8. Result of all the **qualified teams** for second round will be declared through AZeotropy website and also notified to them via email.



9. **Round 2** will be held on the event day here at IIT Bombay. It will consist of 2 questions to be solved **within 3 hrs.** and will account for **40 Marks.**

10. You have to bring your **own laptops** with required languages of your choice installed. Though the questions would be similar to round 1 and you may not require to download any special functionalities or libraries to solve these problems but we would **provide Internet access** so that you can search for concepts or any other specific functions to help you with coding.

11. Decision regarding **final selection** of teams rests with Team AZeotropy 2019.

12. Final decision making **authority** lies with Team AZeotropy, IIT Bombay.

## Certificate Policy

1. Certificates and Cash prizes will also be awarded to **3 top scoring teams.**
2. Certificate of Participation will be given to all the round 1 **qualified teams performing on the event day.**

### Contact:

For any queries related to the Problem Statement or Registration, participants can contact:

Marmik Mundra

+91-7000515704

marmik@azeotropy.org



AZeotropy, Department of Chemical Engineering,  
IIT Bombay, Powai-Mumbai-400076



[www.azeotropy.org](http://www.azeotropy.org)