



# THE JOY OF COMPUTING USING PYTHON

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**TYPE OF COURSE** : Rerun | Elective | UG/PG

**COURSE DURATION** : 12 weeks (18 Jan' 21 - 09 Apr' 21)

**EXAM DATE** : 24 Apr 2021

**INTENDED AUDIENCE** : Any interested audience

**PREREQUISITES** : 10th standard/high school

**INDUSTRY SUPPORT** : Every software company is aware of the potential of a first course in computer science. Especially of a first course in computing, done right.

**COURSE OUTLINE** : A fun filled whirlwind tour of 30 hrs, covering everything you need to know to fall in love with the most sought after skill of the 21st century. The course brings programming to your desk with anecdotes, analogies and illustrious examples. Turning abstractions to insights and engineering to art, the course focuses primarily to inspire the learner's mind to think logically and arrive at a solution programmatically. As part of the course, you will be learning how to practice and culture the art of programming with Python as a language. At the end of the course, we introduce some of the current advances in computing to motivate the enthusiastic learner to pursue further directions.

## ABOUT INSTRUCTOR :

Sudarshan Iyengar has a PhD from the Indian Institute of Science and is currently working as an Assistant Professor at IIT Ropar and has been teaching this course from the past 4 years.

Dr. Yayati Gupta is an Assistant Professor at IIIT Dharwad, Hubli. She completed her PhD from IIT Ropar in 2017 after which she did two postdocs at IIT Madras and IIT Delhi respectively. Her areas of interest include complex networks and social network analysis.

## COURSE PLAN :

**Week 1:** Motivation for Computing

**Week 2:** Welcome to Programming!!

**Week 3:** Variables and Expressions : Design your own calculator

**Week 4:** Loops and Conditionals : Hopscotch once again

**Week 5:** Lists, Tuples and Conditionals : Lets go on a trip

**Week 6:** Abstraction Everywhere : Apps in your phone

**Week 7:** Counting Candies : Crowd to the rescue

**Week 8:** Birthday Paradox : Find your twin

**Week 9:** Google Translate : Speak in any Language

**Week 10:** Currency Converter : Count your foreign trip expenses

**Week 11:** Monte Hall : 3 doors and a twist

**Week 12:** Sorting : Arrange the books