**Summer Tehqiq I -** **Waqar Saleem**

Courses On Competitive Programming

Index:

[1. Competition Programming and Problem Solving](#_7zb5q78a8f71)

[2. CSI 4144 Competitive Learning](#_6bhd2o4sl8jn)

[3. CS3233 - Competitive Programming](#_uj6b9d206cn5)

[4. Competitive Programming (CC3032)](#_45qkt67w5v7k)

[5. CS 97SI: Introduction to Programming Contests](#_20zwwu9y9zrc)

6[. Competitive Programming Courses at Purdue Computer Science](#_4kmrpw1hufc5)

7[. CSCE 430 Problem Solving Programming Strategies  
University: TAMU](#_61jgst6t6jup)

8[. Competitive Algorithmic Programming](#_igncvcyybho4)

9[. How to Win Coding Competitions: Secrets of Champions!](#_2zj04scsfybj)

[10. Name: CSE109:Introduction to Programming Contests](#_vqxf7h4q8bd)

[11. CSE 390 B, ACM Programming Contest Prep](#_ybdszytz1fwz)

[12. 104C Competitive Programming](#_zeipat2avpsd)

[13. T-414-ÁFLV: A Competitive Programming Course](#_eprxscd0p8fd)

[14. COP 4516: Contest Problem Solving](#_gz5tr66fz6ju)

[15. Competitive Programming SI](#_9u9pmmrxh8k4)

[16. Getting Started with Competitive Programming](#_jcst4t8p9efs)

# **Name:** Competition Programming and Problem Solving

**University:** Carnegie Mellon University

**Website:** [2017\_Offering](https://csd.cmu.edu/course-profiles/15-295-Competition-Programming-and-Problem-Solving), [Spring\_2023](https://contest.cs.cmu.edu/295/s23/),

**Date of the last offering:** Spring 2023

**Names of any used books:** [Competitive Programmer's Handbook](https://cses.fi/book/book.pdf) (an e-book), Competitive Programming by Halim and Halim

**Names of any used platforms:** Codeforces, [AtCoder](https://atcoder.jp/), [UVA Online Judge](https://onlinejudge.org/), [SPOJ](https://www.spoj.com/), [CodeChef](https://www.codechef.com/)

**Any other info that might be useful:** They also have a Discord server that the students could join.

# **Name:** CSI 4144 Competitive Learning

**University:** Baylor University

**Website:** <https://cs.baylor.edu/~hamerly/courses/4144_22s/>

**Date of the last offering:** Spring 2022

**Names of any used books:**

Competitive Programming by Halim and Halim, [Principles of Algorithmic Problem Solving](https://www.csc.kth.se/~jsannemo/slask/main.pdf), Programming Challenges by Steven Skeina, The Algorithm Design Manual 2nd Edition by Steven Skeina, Programming Pearls by Jon Bentley, Thinking in C++ (2nd Edition) by Bruce Eckel

**Names of any used platforms:** [Open Kattis](https://open.kattis.com/)

# **Name:** CS3233 - Competitive Programming

**University:** National University of Singapore (NUS)

**Website:** <https://www.comp.nus.edu.sg/~stevenha/cs3233.html>

**Date of the last offering:**

**Names of any used books:**

Competitive Programming textbook (CP4 Book 1 and 2; <https://cpbook.net/> )

**Names of any used platforms:**  Kattis, CodeForces

**Any other info that might be useful:**

# **Name:** Competitive Programming (CC3032)

**University:** University of Porto

**Website:** [Competitive Programming (CC3032)](https://www.dcc.fc.up.pt/~pribeiro/aulas/pc2122/)

**Date of the last offering:**

**Names of any used books:** several including CP4 Book 1 and 2

**Names of any used platforms:** VJudge, UVA, SPOJ, CodeForces, Kattis

**Any other info that might be useful:** Also make use of other online judges including AtCoder, ICPC Live Archive, PEG, Timus, DM:OJ

# **Name:** CS 97SI: Introduction to Programming Contests

**University**: Stanford University

**Website:** [CS 97SI: Introduction to Programming Contests](http://web.stanford.edu/class/cs97si/)

**Date of the last offering:** 2011-12 Winter

**Names of any used books:** no mention of books but lecture slides available on website

**Names of any used platforms:** Peking Online Judge (POJ)

**Any other info that might be useful:** <https://cs.stanford.edu/group/acm/home.html>

# **Name:** Competitive Programming Courses at Purdue Computer Science

**University:** Purdue University

**Website:** <https://www.cs.purdue.edu/homes/ninghui/courses/cpx_index.html>

**Date of the last offering:** Fall 2020 available

**Names of any used books:**

Competitive Programming by Halim and Halim, slides and lectures - some available on the website

**Names of any used platforms:** LeetCode, Codeforces, USACO problems, [Open Kattis](https://open.kattis.com/)

**Any other info that might be useful:** Their Competitive Programming series are basically four 2-credit hour programming courses designed and taught by the coaches (Ninghui Li and Gustavo Rodriguez-Rivera) and students of the Purdue ICPC team. It involves Intro to Competitive Programming, Competitive Programming I, II, and III where one course is the pre-req of the next course. Intro to Competitive Programming has no pre-req courses and only requires high school geometry knowledge. The course is taught in C++ but focuses on the procedural parts of C++ largely shared by Java and C (the goal is not to teach C++, but how to program).

# **Name:** CSCE 430 Problem Solving Programming Strategies **University:** TAMU

**Website**: <https://www.cs.utexas.edu/users/utpc/courses/TAMU-CSCE-430.pdf>

**Date of last offering:** Spring 2023

**Names of any used books:** Competitive Programming by Halim and Halim

**Names of any used platforms:** [Open Kattis](https://open.kattis.com/),

# **Name:** Competitive Algorithmic Programming

**University:** University of Illinois

**Website:** <https://courses.engr.illinois.edu/cs491cap/fa2019/> , [CS 491 CAP (Spring 2022) (uiuc-cs491cap.netlify.app)](https://uiuc-cs491cap.netlify.app/)

**Date of last offering:** Spring 2023

**Names of any used books:** [Guide to Competitive Programming](https://link.springer.com/book/10.1007/978-3-319-72547-5)

**Names of any used platforms:** Piazza Discussion Forum, GitHub

# **Name:** How to Win Coding Competitions: Secrets of Champions!

**University:** ITMO University

**Website:** <https://courses.edx.org/courses/course-v1:ITMOx+I2CPx+3T2017/3684d8adc76f431db0b7b0d3dbc4f555/>

**Date of Last Offering:** November 2023

**Resources:** Lecture slides, video lectures

**Platform:**

**Any other info that might be useful:** The final exam is carried out exactly like the ACM ICPC World Finals.

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# **Name:** CSE109**:**Introduction to Programming Contests

**University:** University of California, San Diego

**Website:** <https://shangjingbo1226.github.io/teaching/2022-spring-CSE109>

**Date of Last Offering:** Spring 2022

**Resources:** Lecture Slides, Steve Halim’s Competitive Programming Book, USACO Training Program

**Platform:** Peking Online Judge, Open Kattis, Sphere Online Judge, UVa Online Judge, Piazza

# **Name:** CSE 390 B, ACM Programming Contest Prep

**University:** University of Washington

**Website:** [CSE 390 B, ACM Programming Contest Prep, Spring 2012](http://www.martystepp.com/acm/)

**Date of Last Offering:** Spring 2012

**Names of any used books:** Programming Challenges by Steven S. Skiena and Miguel A. Revilla

**Names of any used platforms:** UVa Online Judge: <https://onlinejudge.org/>

**Any other info that might be useful:** Full weekly syllabus is available on site

# **Name:** 104C: Competitive Programming

**University:** University of Texas at Austin

**Website:** [**https://www.cs.utexas.edu/users/downing/cs104c/**](https://www.cs.utexas.edu/users/downing/cs104c/)

**Date of Last Offering:** Can’t find, next offering in Fall 2023 expected

**Resources:**  [A Comprehensive Collection of Books, Tools, Online Platforms, Other courses and videos](https://www.cs.utexas.edu/users/downing/cs104c/Resources.html)

**Platform:** [**CSES**](https://www.cses.fi/), Codeforces, GitHub and GitLab(class repo), Zoom

# **Name:** T-414-ÁFLV: A Competitive Programming Course

**University:** Reykjavik University

**Website:** <https://algo.is/competitive-programming-course>, [T-414-ÁFLV: A Competitive Programming Course (2016 edition) | Bjarki Ágúst Guðmundsson](https://algo.is/t-414-aflv-competitive-programming-course-2016),

**Date of Last Offering**: Spring 2016

**Resources:** [Course Material on GitHub](https://github.com/SuprDewd/T-414-AFLV)

**Platform:** Open Kattis, GitHub

**Any other info**: It was a 3-week program with a fresh lecture and problem set everyday

# **Name:** COP 4516: Contest Problem Solving

**University:** UCF

**Website:** <http://www.cs.ucf.edu/~dmarino/progcontests/cop4516/spr2021/>, [Syllabus](http://www.cs.ucf.edu/~dmarino/progcontests/cop4516/spr2021/COP4516-Syllabus-Spr2021.pdf)

**Date of the last offering:** Spring 2021

**Names of any used books:** Introduction to Algorithms – Cormen, Leiserson, Rivest, Stein, Programming Challenges – Skiena, Revilla, Competitive Programming 3 - Halim and Halim, Guide to Competitive Programming - Laaksonen

**Names of any used platforms:** Codeforces, Hackerrank, USACO, Top Coder, CodeChef, CodeJam, SPOJ

# **Name:** Competitive Programming SI

**University:** University of Central Florida SI

**Website:** <https://siucf.cs.ucf.edu/programming-competition-overview/>

**Date of Last Offering:** July, 2023

**Resources: -**

**Platform:** Codeforces

# **Name:** Getting Started with Competitive Programming

**Online Learning Platform:** Swayam (IIT, Gandhinagar)

**Website:** <https://onlinecourses.nptel.ac.in/noc22_cs59/preview>

**Date of Last Offering:** April 2022

**Resources:**

1. Algorithms by Jeff Erickson
2. Algorithms Illuminated by Tim Roughgarden
3. Algorithm Design Jon Kleinberg and Éva Tardos
4. Introduction to Algorithms Cormen, Leiserson, Rivest, Stein
5. Competitive Programming 4: The Lower Bound of Programming Contests in the 2020s by Steven Halim and Felix Halim
6. Guide to Competitive Programming: Learning and Improving Algorithms Through Contests Antti Laaksonen

**Platform:** Codechef

**Additional info:**

* 1. More platforms for practice:
     1. <https://atcoder.jp/>
  2. <https://github.com/E869120/Competitive-Programming>
  3. MOOCs:
     1. Moscow Institute of Physics and Technology (2 courses offered): <https://www.mooc-list.com/university-entity/moscow-institute-physics-and-technology?sort_bef_combine=field_start_date_value_DESC&title=programming&field_initiative_target_id=&field_university_entity_target_id=&field_categories_target_id=&field_tags_target_id=&field_length_target_id=&field_start_date_value=>
     2. <https://onlinecourses.nptel.ac.in/noc21_cs99/preview>
  4. [Princeton Competitive Programming](https://competitive-programming.cs.princeton.edu/) - not a course, but sessions offered in Fall 22 and Spring 23, where they host a competitive programming session on a designated day and time once every week. The session is open to all, and they have a discord server for easy communication and updates. (They offer free food and snacks - a good incentive). The session is of 2.5 hours divided as such; 30-minute lecture session on some introductory topic in competitive programming followed by 2 hours practice contest. Find more about their resources on the [resources page](https://competitive-programming.cs.princeton.edu/resources).
  5. <https://awesomerank.github.io/lists/lnishan/awesome-competitive-programming.html>: This link has courses and books that might be helpful when designing the course syllabus.
  6. <https://ocw.mit.edu/collections/introductory-programming/>
  7. <https://cs.uwaterloo.ca//current/courses/course_descriptions/cDescr/CS231>
  8. CS 5199 Spring 2020: Competition Programming and Problem Solving Seminar

(Cornell University), link: <https://www.cs.cornell.edu/courses/cs5199/2020sp/>