# CAMPUS RECRUITMENT TRAINING PROGRAM

is evaluated by the NEAT CELL AICTE

**NEAT PRODUCT LINK: https://neat.aicte-india.org/course-details/NEAT2020593_PROD_2**

*(Aptitude, Technical, Competitive Coding, Soft Skills)*

Performance enhancement course for **CAMPUS RECRUITMENT DRIVES**

## Objective

The course aims at the improvement of problem-solving skills through aptitude training, coding, and the usage of short cut techniques and libraries to perform better in timed competitive situations. The course makes the learner practice softskills and experience mock interviews, group discussions, and learn the best practices for winning online interviews.

The detailed objectives are:

- Understanding of quantitative numerical ability - aptitude topics and shortcut methods
- Understanding the approaches to solve logical and critical reasoning problems
- Understanding the approaches to solve game based aptitude problems
- Practice frequently asked verbal ability problems
- Revision of syntax and structure coding approaches of program language (s) (C/C++/Java/Python)
  - Understanding the time and space complexity of programs
  - Understanding the problem (first thing first)
  - Understanding the test cases
  - Understanding the most common compiler errors
  - Understanding the most common runtime errors
  - Understanding the variable sizes to avoid overflows
  - Understanding how to analyze a problem before the implementation
  - Understanding how to formulate an algorithm from the problem analysis
  - Understanding how to transform the algorithm into a solution
  - Understanding how to apply the test cases to the solution
- Understanding of the major libraries and API usage for quick coding
- Mapping between questions and algorithm techniques
- Problem-solving with a focus on multiple approaches to achieve the solution and understanding them
- Learn debugging tricks and techniques
- Understanding testing methodologies
- Practice WBS techniques
- Practice tests under time conditions
- Learning code review techniques
- Learn the best practices for winning performance in personal, behavioral, HR, and technical interviews
- Learn best practices of group discussions
- Practice interviews and group discussions
- Learn professional email etiquettes
- Understanding the differences between bio-data, cv, resume
- Creating powerful resumes
- Best practices / troubleshooting for interviews via video conferencing

## Course outline of aptitude and reasoning

- **Quantitative Aptitude**
  - Ice Breaking Session
  - Number System
  - Percentage
  - Profit and Loss
  - Average
  - Partnerships
  - Simple Interest
  - Compound Interest
  - Permutations
  - Combinations
  - Probability
  - Time and Distance
  - Problems on Ages
  - Boats and Streams

- **Data Interpretation**
  - Venn Diagrams
  - Bar Graph, Tabular Form, Line Chart, Caselet Form, Pie Chart

- **Reasoning**
  - Series
  - Blood Relations
  - Pattern Completion
  - Analogy

- **Game Based Aptitude**
  - Deductive Logical Thinking
  - Inductive Logical Thinking
  - Grid Challenge
  - Motion Challenge

## Course outline of competitive coding

A. What is competitive programming and how to prepare for It?
B. Fast I/O: C, C++, Java, Python
C. Useful libraries: C, C++, Java, Python

**Module 1:** Revision of basics of programming and problem-solving (C, C++, JAVA & PYTHON)

a. Data types, variables, size of variables, operators, control statements
b. Array, String & Matrix
c. Functions
d. Object oriented programming and principles
e. Solve MCQ-type tricky questions
f. Solve word problems

**Module 2:** Time complexity

a. Big **O** notation
b. Big **Ω** notation
c. Big **Θ** notation
d. Solve MCQ type programming problems
e. Solve case based/scenario based problems

**Module 7:** Special libraries

a. C: Utility libraries (string.h, stdarg.h, ctype.h, stdlib.h, math.h, and more)
b. C++: The Standard Template Library (STL)
c. Java: Utility libraries (ArrayList, Queue, Stack, Set and other collection framework classes, Java Generics, and more)
d. Python: Utility libraries (heap, dequeue, heapq, sorted, pandas, numpy, sklearn, and more)

**Module 3:** Program optimization

a. Dynamic programming
b. Greedy algorithms
c. Divide and conquer
d. Activity selection problems
e. Backtracking

**Module 4:** Pseudo code

a. Rules of pseudo codes
b. Pseudo-code problem solving

**Module 5:** Automata fixing

a. What is automata fixing?
b. Problem-solving

**Module 6:** Data structures & algorithms

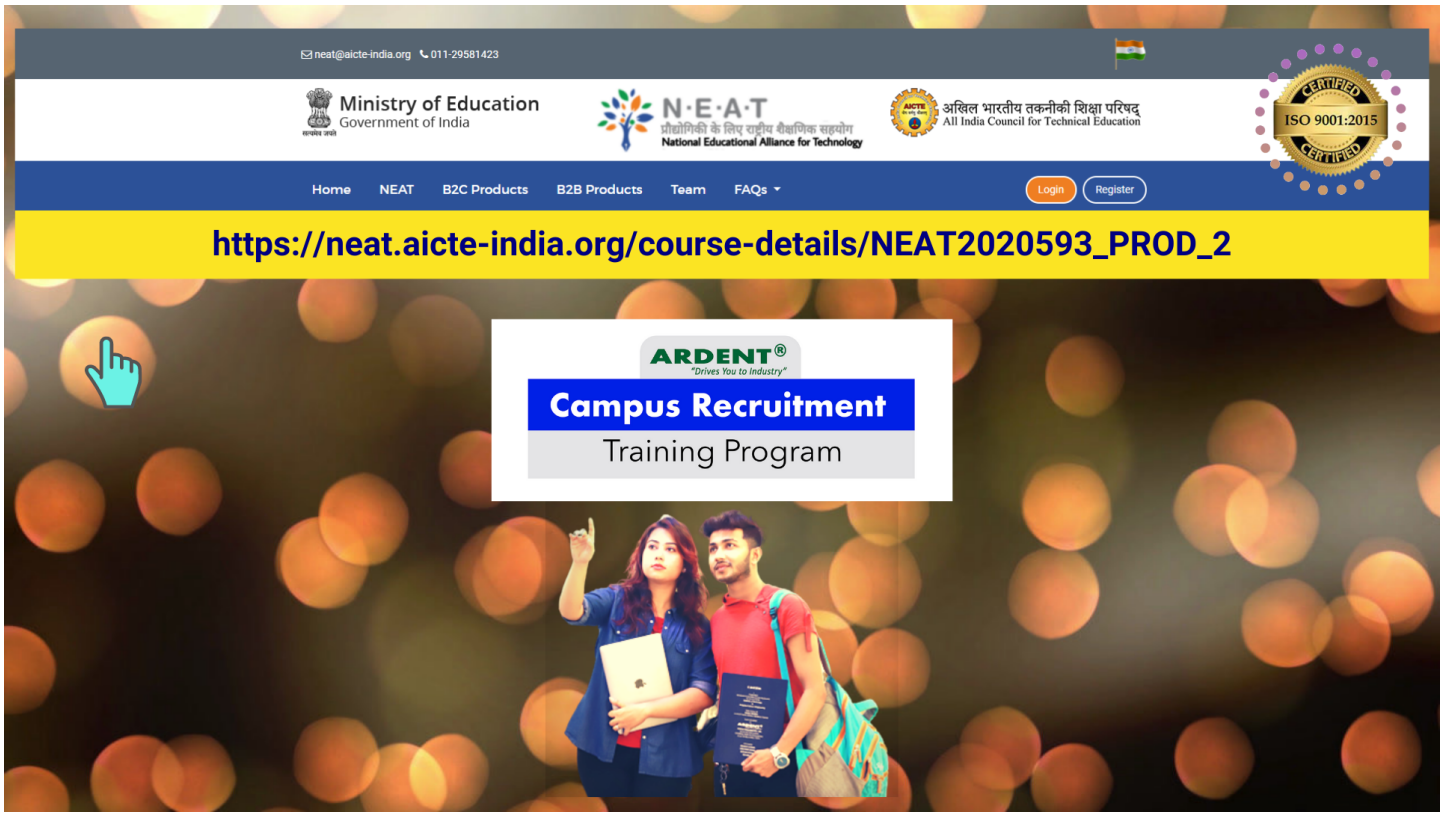
a. Fundamental: string, stack, queue, list, tree, sorting, searching, hashing
b. Advanced algorithm design and analysis techniques
c. Graph algorithms
d. Matrix operations, pattern generation, string matching
e. Problem-solving

**Module 8:** Assessments

a. Company pattern MOCK tests
b. Problem solving and coding tests

c. Practice platform hackerrank and leetcode will be used for practice under timed conditions

Practice programs based on TCS Digital, Code Vita, TCS NQT, TCS NINJA, Accenture, Cap Gemini, Wipro, etc.




# Course outline of soft skills

## Module 01 - English Language

- Introduction of faculty:  Soft skills - what, why & how
- Understanding opportunities
- Understand yourself
- Bridging the gap – campus to corporate
- Students to introduce themselves
- Subsequent qualitative & quantitative evaluation of a student while s/he speaks on parameters like grammar, vocabulary, contents, accent & pronunciation, expressions, clarity, fluency, body language, confidence etc. and instant corrective feedback
- Enforcement of operative practices (functional) - punctuality, grooming, and discipline
- Nouns, verbs, adverbs, tenses, idioms, punctuations, implementation of grammar in sentence formation
- Building vocabulary
- Open house- question answer sessions

## Module 02 - English Communication

- Barriers of communication
- Speaking & listening effectively
- Idioms, phrases & proverbs
- Word games on thinking in English, faster thought process & building vocabulary
- “Just-a-minute” speaking exercise
- Writing skills (email, business correspondence), Reading skills (focus on voice modulation)
- Language games, interactive activities
- Group activities
- Smart english vs normal english
- AV clips to enforce learning
- Attitude management
- Killing nervousness & building confidence
- Body language & dress code
- Overcoming limiting beliefs, Overcoming bad habits
- Developing self confidence, basic etiquettes
- Role plays
- Open house - question answer sessions

## Module 03 - Personality Enhancement and Interview Skills

- Working as a team
- Understanding differences between bio-data, cv, resume
- Resume format discussion and resume writing
- Personal interview techniques, behavioral interview techniques, technical interview techniques
- Group discussion best practices
- Practice interviews and GD with video recording and playback
- Best practices / troubleshooting for interviews via video conferencing

## Course outcome

**This course is beneficial for learners of varied skills.**

1. Learners will get the opportunity to solve aptitude, reasoning and logical problems under timed conditions. In many cases, learners will have to unlearn traditional methods and adopt shortcut methods to solve problems.
2. Learners with basic knowledge of programming with low confidence to face coding challenges and coding-related questions
    a. The course gives them a chance to learn to program and develop the confidence to perform
    b. It gives them a beyond-the-curriculum opportunity to learn to code.
3. Learners with intermediate knowledge of programming with average confidence to face coding challenges and coding-related questions
    a. The course gives them a chance to learn to enhance their skill to write programs and increase their confidence level
    b. It gives them a beyond-the-curriculum opportunity to learn skills for writing quick code.
4. Learners with good knowledge of programming with high confidence to face coding challenges and coding-related questions
    a. The course gives them a chance to practice serious coding and solve problems of medium to hard complexity
    b. It gives them a chance to prepare for companies having the requirement strong programming knowledge
    c. These students can enhance their skills to compete for higher package jobs by the companies.
5. Learners with basic, medium and good knowledge of soft skills will find the program useful. The program will strive to develop and sharpen the soft skills of the learners.

## Duration

| Duration | Hours |
|---|---|
| Aptitude and Reasoning | 16 |
| Technical and Competitive Coding | 16 |
| Soft Skills | 16 |