CHART CODE ACADEMY

Decode The Market Code

Options Basics

Call, Put & the Greeks

Options give you **limited risk** and **open-ended reward**, but only if you understand **premium, time and volatility**. Learn calls, puts, payoffs and the Greeks, step by step.

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About This Guide

Options are contracts that give the buyer the right, but not the obligation, to buy or sell an asset at a fixed price by a set date. The buyer pays a premium for that right, and that premium is the most a buyer can lose. A call profits when price rises, a put profits when price falls, and the Greeks (Delta, Gamma, Theta and Vega) measure what moves the premium.

By the end of this guide you will be able to:

- Explain calls, puts, strike, expiry, premium and moneyness (ITM, ATM, OTM)
- Split a premium into intrinsic value and time value
- Read the payoff of a bought or sold option at expiry, including breakeven
- Understand Delta, Gamma, Theta and Vega and what each does to your premium
- Read a simple option chain and avoid the common beginner mistakes
- Run a five-point checklist before any options trade

Options Basics: Call, Put & the Greeks

A Chart Code Academy Guide

1. What Is an Options Contract?

QUICK ANSWER

An **option** is a contract that gives the buyer the *right, but not the obligation*, to buy or sell an underlying asset at a fixed **strike price** on or before **expiry**. A **call** is a right to buy and profits when price rises; a **put** is a right to sell and profits when price falls. The buyer pays a **premium** for that right, and that premium is the buyer's maximum loss.

Think of an option like a token booked for a fixed price. You pay a small fee now for the right to buy at today's agreed price later. If the price rises, the token is valuable; if it does not, you lose only the fee. That limited loss is the main attraction for buyers, and the reason time and volatility work against them.

INDIA NOTE

Index options such as Nifty are cash-settled and European style, meaning they can be exercised only at expiry. Stock options are physically settled. Lot sizes, expiry days and margin rules are revised by the exchange from time to time, so check the current details on the NSE website before trading.

2. Key Options Terms

Term	Meaning
Underlying	The asset the option is based on, such as the Nifty index or a stock
Strike price	The fixed price at which the option can be exercised
Expiry	The date the contract ends
Premium	The price of the option, paid by the buyer to the seller
Lot size	The number of units in one contract; multiply per-unit profit or loss by it
Buyer (holder)	Pays the premium and has the right to exercise
Seller (writer)	Receives the premium and must honour the contract; needs margin

Options are also described by where the strike sits relative to the current price, called **moneyness**:

State	Call option	Put option
In the money (ITM)	Spot above strike	Spot below strike
At the money (ATM)	Spot near strike	Spot near strike
Out of the money (OTM)	Spot below strike	Spot above strike

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Premium = Intrinsic value + Time value
Call intrinsic value = max(Spot − Strike, 0)
Put intrinsic value = max(Strike − Spot, 0)
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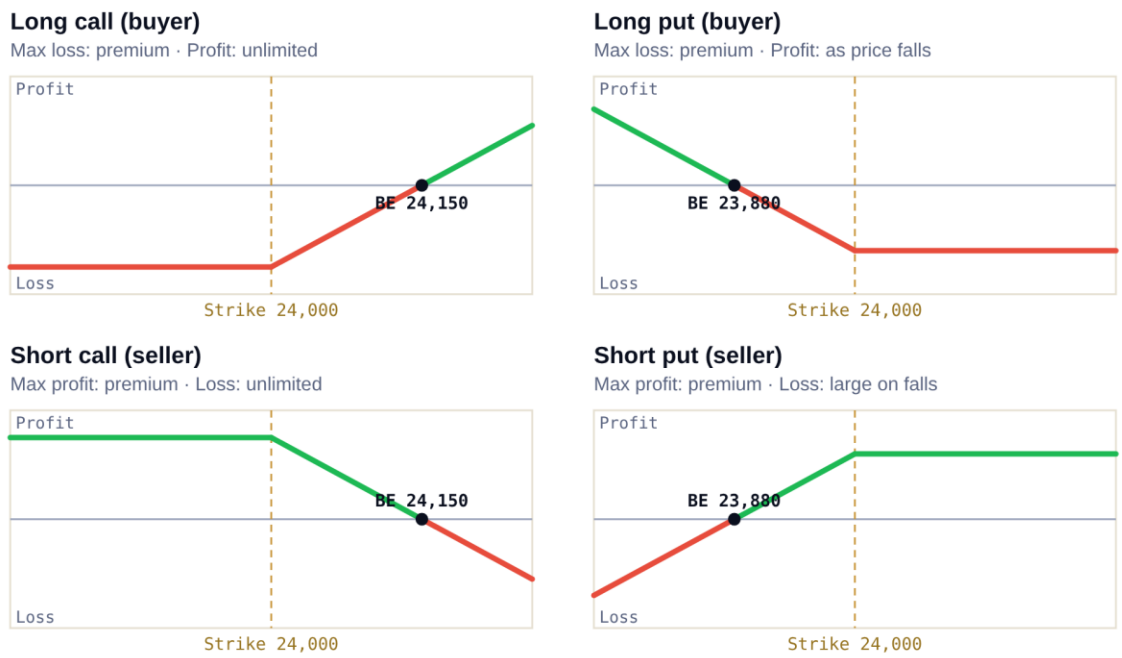
Example: with spot at 24,100, a 24,000 call priced at 180 has intrinsic value of 100 and time value of 80. An OTM option has no intrinsic value, so its whole premium is time value, which is why it can decay to zero.

3. How Calls and Puts Make or Lose Money

At expiry, a bought option's profit is its intrinsic value minus the premium paid. Take a long 24,000 call bought at a premium of 150, per unit:

Spot at expiry	Intrinsic value	Profit or loss per unit
23,700	0	−150 (max loss)
24,000	0	−150 (max loss)
24,150	150	0 (breakeven = strike + premium)
24,300	300	+150
24,600	600	+450

For a put the logic flips: breakeven is strike minus premium, and profit grows as price falls. Multiply per-unit results by the lot size to get rupee amounts.



Visualising it: buyers have a capped loss and open-ended profit; sellers have the reverse. BE marks breakeven. Example premiums: call 150, put 120. Green is profit, red is loss, dashed gold line is the strike.

4. Buying vs Selling Options

	Option buyer	Option seller
Receives or pays	Pays premium upfront	Receives premium, must post margin
Maximum loss	Premium paid	Very large, unlimited for a call
Maximum profit	Large, unlimited for a call	Premium received
Time decay	Works against the buyer	Works for the seller
Needs	Direction, size of move and timing	Price to stay away from the strike

Sellers win more often but can lose far more when they are wrong, so a seller without a stop-loss or hedge is exposed to a single event wiping out many small gains. Beginners are generally safer starting with **defined-risk positions**, where the maximum loss is known before entry.

5. The Option Greeks

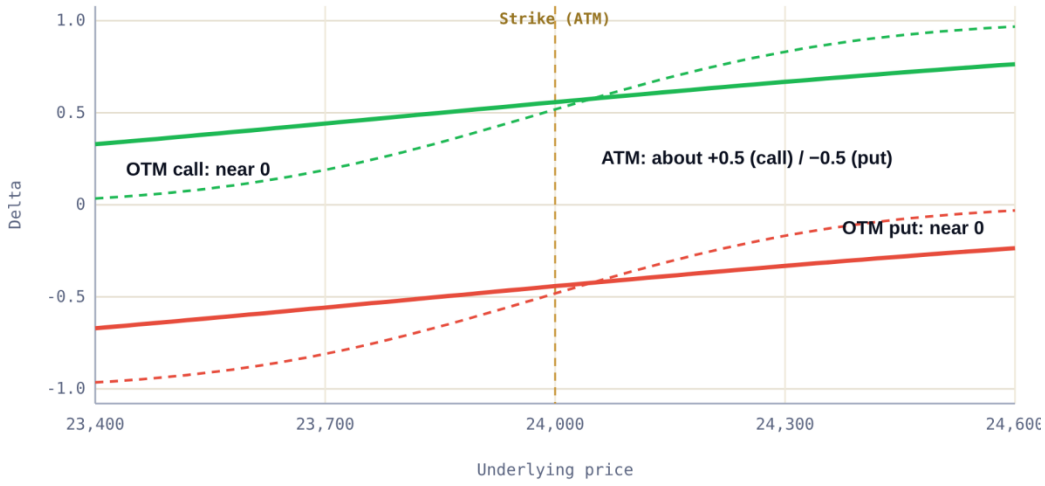
The Greeks are measurements of how an option's premium reacts to different forces. Learn them one at a time.

Greek	Measures	Long call	Long put	Strongest when
Delta	Premium change per 1-point move in the underlying	+ (0 to 1)	− (−1 to 0)	Deep in the money
Gamma	How fast Delta itself changes	+	+	At the money, near expiry
Theta	Premium lost per day from passing time	−	−	At the money, final days
Vega	Premium change per 1-point change in implied volatility	+	+	At the money, longer expiry
Rho	Premium change per 1-point change in interest rates	+	−	Long expiry; minor for short-dated options

Option sellers hold the opposite signs: negative Gamma, positive Theta and negative Vega.

6. Delta: How Much the Premium Moves

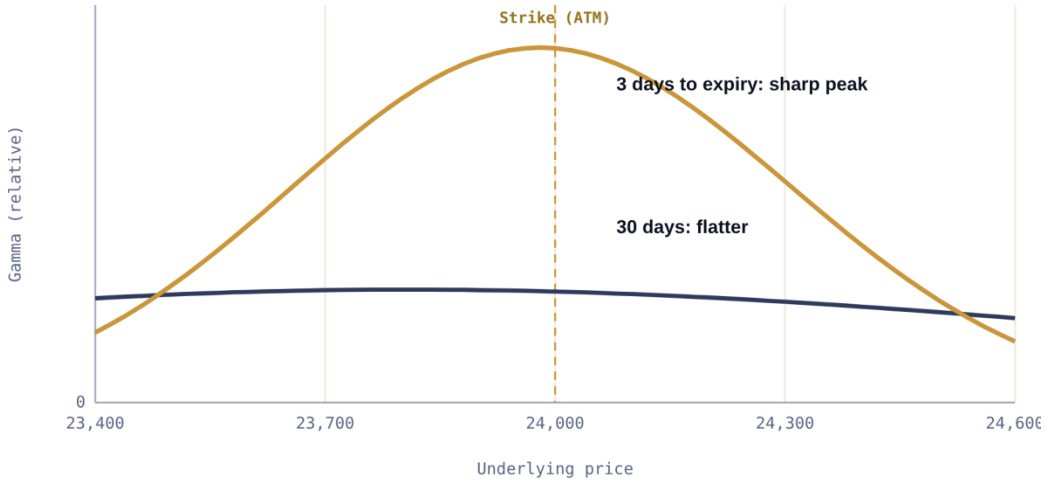
Delta is the change in an option's premium for a 1-point move in the underlying. A call with Delta 0.5 gains about 0.5 for each 1-point rise. ATM options sit near ±0.5, deep ITM options approach ±1 and behave like the underlying itself, and far OTM options approach 0. Delta is also a rough guide to the market's estimated chance of the option finishing in the money, though it is an approximation only.



Visualising it: call Delta climbs from 0 to 1 as the option goes in the money and put Delta falls from 0 to −1. Closer to expiry (dashed), the switch is sharper. Illustrative model values, not live prices.

7. Gamma: How Fast Delta Changes

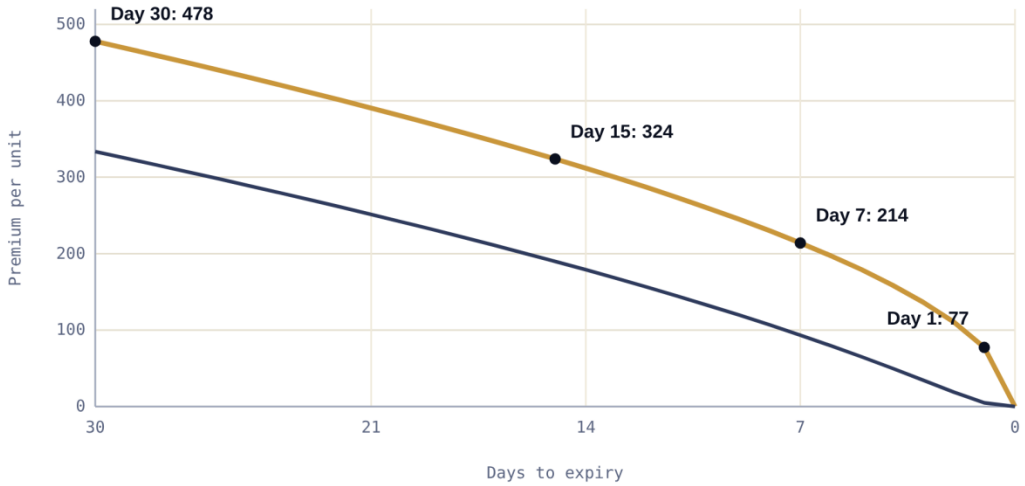
Gamma is how quickly Delta changes as price moves. It is highest for ATM options close to expiry, where a small move can swing an option from nearly worthless to valuable. That is why last-day ATM options can move wildly, both for buyers who gain and sellers who get hurt.



Visualising it: with 3 days left, Gamma spikes at the strike; with 30 days left, it is low and spread out. Illustrative model values, not live prices.

8. Theta: The Cost of Time

Theta is time decay: the premium an option loses each day, all else equal. Time value does not fade in a straight line. It decays slowly at first and then faster, and fastest in the final week for ATM options. An OTM option decays all the way to zero if it never gets into the money.



Visualising it: the ATM call loses value slowly for weeks and then quickly in the last days; the OTM call fades to zero. Spot fixed at 24,000, volatility 15%. Illustrative model values.

For a buyer, Theta is a daily cost of waiting; for a seller, it is the daily income. This is the main reason buying options on expiry day is such a low-odds game unless the move is large and quick.

9. Vega and Implied Volatility

Implied volatility (IV) is the market's expected size of future price swings, backed out of option prices. **Vega** tells you how much the premium changes for a 1-point change in IV. High IV means expensive options; low IV means cheaper ones. India VIX, computed by the NSE from Nifty option prices, shows the expected annualised Nifty volatility over the next 30 days.

WORTH REMEMBERING

Before events such as results, budgets or policy announcements, IV usually rises and premiums swell. After the event, IV often collapses (sometimes called IV crush), so an option buyer can be right on direction and still lose money because Vega drained the premium.

10. How to Read an Option Chain

An option chain lists calls on one side, puts on the other and strikes in the middle. Here is a simplified, illustrative chain with spot at 24,000, 7 days to expiry and 14% volatility:

Call delta	Call premium	Strike	Put premium	Put delta
0.69	322	23,800	92	-0.31
0.61	257	23,900	127	-0.39
0.53	**201**	**24,000**	**171**	**-0.47**
0.44	153	24,100	223	-0.56
0.36	114	24,200	283	-0.64

Illustrative values from a pricing model, not live quotes. The ATM row is in bold.

Notice that call premiums fall as the strike rises while put premiums rise, and that the ATM call and put premiums are of a similar size. Call and put Delta at each strike differ by exactly 1 (for example 0.53 and −0.47 at the 24,000 strike). On a live chain you will also see open interest, volume and implied volatility per strike, and a bid-ask spread. Prefer liquid strikes with a tight spread, since wide spreads are an extra cost.

11. Common Options Beginner Mistakes

1. **Buying far out-of-the-money "lottery" options:** They look cheap because the odds are low. Most of them expire worthless.
2. **Ignoring Theta:** Being right on direction is not enough if the move comes too slowly. Time decay eats the premium.
3. **Buying before events at peak IV:** Premiums are inflated before news and often fall after, even if the market moves your way.

4. **Selling naked options without a hedge:** Small, regular gains can be wiped out by one large adverse move. Define the risk first.
5. **Oversizing positions:** Leverage cuts both ways. Risk a small, fixed share of capital per trade.
6. **Trading illiquid strikes:** Wide bid-ask spreads make entering and exiting expensive. Stick to actively traded strikes.

12. Your Options Trade Checklist

Run this five-point check before any options trade:

- **Direction, size and timing** — Do you have a view on which way, how far and by when? Options need all three.
- **Strike and expiry** — Does the strike give a realistic chance of profit, and does the expiry leave enough time?
- **Implied volatility** — Is IV high or low compared with its recent range, and is an event about to change it?
- **Defined maximum loss** — Do you know the most you can lose in rupees, and is it a small share of your capital?
- **Exit plan** — Do you know your profit target, your stop, and when you will exit if time passes without a move?

EDUCATIONAL CONTENT ONLY

This guide explains how options work and is not investment advice or a recommendation to trade. Options are high risk. SEBI studies have found that a large majority of individual traders in equity derivatives incur net losses. Never risk money you cannot afford to lose, and check the exchange's current lot sizes, margin rules and expiry schedule before trading.

13. Frequently Asked Questions

What is a call option and a put option?

A call option gives the buyer the right, but not the obligation, to buy the underlying at the strike price on expiry. A put option gives the buyer the right, but not the obligation, to sell it at the strike price. Buyers pay a premium for that right; sellers receive the premium and take on the obligation.

Can I lose more than I pay when buying an option?

No. An option buyer's maximum loss is the premium paid. Sellers (writers) are different: a naked call seller faces potentially unlimited loss and a put seller faces a large loss if the price collapses, which is why sellers must maintain margin.

Why does an option lose value even when the market does not move?

Two reasons. Time value decays every day as expiry approaches (Theta), and the premium also falls if implied volatility drops (Vega). An option buyer therefore needs the right direction, a big enough move and the right timing.

What is the difference between intrinsic value and time value?

Intrinsic value is what the option would be worth if exercised right now: for a call, spot minus strike, if positive. Time value is the rest of the premium, which pays for the chance of a favourable move before expiry. Premium equals intrinsic value plus time value.

Which Greek should a beginner learn first?

Start with Delta and Theta. Delta shows how much the option price moves with the underlying, and Theta shows how much you pay for time each day. Gamma and Vega matter next, especially near expiry and around events.

What is implied volatility and India VIX?

Implied volatility is the market's expectation of future price swings, worked out from option prices. India VIX is the NSE's measure of expected Nifty volatility over the next 30 days, computed from Nifty option prices. Higher implied volatility makes premiums more expensive.

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