D Glossary

Every technical term the book uses, in alphabetical order, with the standard Arabic equivalent where one exists and a pointer to the chapter that introduces the idea. The definitions here are short by design: they are meant to unblock a sentence you are reading, not to replace the section that teaches the method. The front-matter chapter *How to Read This Book* carries the companion material: the symbol table, factor notation, and the number and sign conventions.

A note on the Arabic column. It gives the term normally used in Arabic-language engineering economy teaching. Where a term has no settled Arabic equivalent, or where more than one is in common use and the choice would change the meaning, the column is left empty rather than filled with a guess.

Term	**Arabic**	**Meaning**
after-tax cash flow (ATCF)	التدفق النقدي بعد الضريبة	The cash a project actually produces once tax has been paid: $(R - E)(1 - t) + t\,D_n$. Not the same as net income, which subtracts depreciation without any cash leaving. chapter 10
alternative	بديل	One of the courses of action being compared. Doing nothing is an alternative and must be included whenever it is available. chapter 1
amortized loan	قرض مقسط	A loan repaid in equal instalments, each one part interest on the outstanding balance and part repayment of principal. chapter 3
annual equivalent (AE)	المكافئ السنوي	A cash flow stream restated as one equal amount per period over the study period. Written AEC when the stream is a cost. chapter 6
anchoring	التثبيت	The tendency of a review to stay close to the first number it was shown, even when that number was only a starting guess. chapter 20
benefit–cost ratio (B/C)	نسبة المنفعة إلى التكلفة	Users' benefits divided by the sponsor's costs, both in present worth. Used to screen publicly funded projects. chapter 8

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Glossary, continued

Term	**Arabic**	**Meaning**
book value (B_n, BV)	القيمة الدفترية	The cost basis less all depreciation taken so far. An accounting record, not a price anyone would pay. chapter 10
break-even point	نقطة التعادل	The value of an input at which the decision changes, usually the value that makes $PW = 0$. chapter 12
capital recovery (CR)	استرداد رأس المال	The annual cost of owning an asset: the purchase price less the salvage value, spread over the life, plus interest on the money tied up. chapter 6
capitalized equivalent (CE)	التكلفة المرسملة	The present worth of a cash flow that repeats forever, A/i. Used for assets with no planned end: roads, dams, endowments. chapter 5
carbon price	سعر الكربون	A money value put on a tonne of emitted CO_2 so that emissions enter the cash flow like any other cost. chapter 17
cash flow diagram (CFD)	مخطط التدفق النقدي	A time line with an arrow for every cash flow: up for money received, down for money paid. Draw it before writing any equation. chapter 2
challenger	الأصل البديل	In a replacement study, the candidate asset proposed to take over from the one currently owned. chapter 16
compound interest	الفائدة المركبة	Interest computed on the principal *and* on the interest already earned. Every factor in this book assumes it. chapter 2
constant riyals	الريالات الثابتة	Amounts expressed in the purchasing power of one chosen base year, with inflation removed. Contrast actual (current) riyals. chapter 4
cost basis (I)	أساس التكلفة	The one-time amounts needed to acquire an asset and make it ready for use — invoice price, freight, installation — and therefore the amount that may be depreciated. Training paid in an earlier year is sunk and never enters it. chapter 10
cost of capital	تكلفة رأس المال	The weighted average rate the firm pays for the money it uses, and the usual starting point for setting a MARR. chapter 3
decision tree	شجرة القرار	A diagram of decisions and chance events in the order they occur, solved backwards by rolling expected values back to the present decision. chapter 13
declining balance (DB)	الرصيد المتناقص	A depreciation method that charges a fixed percentage of the *remaining* book value each year, so early charges are large. chapter 10
defender	الأصل الحالي	In a replacement study, the asset currently owned. Its relevant first cost is its market value today, not what was paid for it. chapter 16

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Glossary, continued

Term	Arabic	Meaning
depreciation (D_n)	الإهلاك	A deduction that spreads the cost basis of an asset over its life. It moves no cash by itself; it matters because it lowers the tax bill. chapter 10
discounting	الخصم	Moving an amount backwards in time to find what it is worth now. Money moved backwards always gets smaller when $i > 0$. chapter 2
economic service life	العمر الخدمي الاقتصادي	The number of years of ownership that makes the annual equivalent cost smallest. It is usually shorter than the physical life. chapter 16
effective interest rate (i_a)	معدل الفائدة الفعلي	The rate actually earned or paid over a year once compounding within the year is counted: $i_a = (1 + r/M)^M - 1$. chapter 3
equivalence	التكافؤ	Two cash flow streams are equivalent when they have the same worth at a stated interest rate, even though their amounts and timing differ. The idea the whole subject rests on. chapter 2
expected value ($E[\cdot]$)	القيمة المتوقعة	The probability-weighted average of the possible outcomes. It is what would happen on average over many repetitions, not what will happen once. chapter 12
external rate of return	معدل العائد الخارجي	The return computed when surplus funds are assumed to earn the firm's own rate rather than the project's, used to resolve multiple i^*. chapter 7
future worth (FW)	القيمة المستقبلية	A cash flow stream restated as a single amount at the end of the study period. chapter 5
geometric gradient (g)	التدرج الهندسي	A series that grows by a constant *percentage* each period, the usual shape of a cost that tracks inflation. chapter 2
gradient (G)	التدرج	A series that grows by a constant *amount* each period. The first gradient payment occurs at period 2, not period 1. chapter 2
half-year convention	اصطلاح نصف السنة	The MACRS rule that treats every asset as placed in service, or disposed of, at the midpoint of the year, so half a year's charge is taken. chapter 10
incremental analysis	التحليل التفاضلي	Comparing two alternatives through the differences between them. Only the differences can decide a choice. chapter 7
inflation	التضخم	A general rise in prices, which lowers what one riyal buys. Measured by a price index. chapter 4
internal rate of return (IRR, i^*)	معدل العائد الداخلي	The interest rate at which a project's present worth is zero. Accept if it exceeds the MARR — but only after checking that the investment is simple. chapter 7

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Glossary, continued

Term	Arabic	Meaning
levelized cost (LCOE)	التكلفة المستوية للطاقة	The annual equivalent cost of a plant divided by the energy it delivers in a year: the price per kilowatt-hour that would just break even. chapter 6
life-cycle cost	تكلفة دورة الحياة	Every cost of an asset from purchase to disposal, not the purchase price alone. chapter 17
MACRS	نظام الاسترداد المعجل للتكلفة	The United States tax depreciation system: a published percentage p_n per class year, applied to the basis, ignoring salvage. chapter 10
marginal tax rate (t)	معدل الضريبة الحدي	The rate applied to the next riyal of taxable income, and therefore the rate that prices any change a project makes. chapter 10
market value	القيمة السوقية	What an asset would actually sell for today. Rarely equal to its book value. chapter 16
MARR	الحد الأدنى لمعدل العائد المقبول	Minimum attractive rate of return: the rate a project must beat to be worth doing, set by the firm from its cost of capital and its risk appetite. chapter 5
Monte Carlo simulation	محاكاة مونت كارلو	Replacing point estimates with probability distributions and sampling many times, to get a distribution of PW instead of a single number. chapter 14
multi-criteria decision analysis	تحليل القرار متعدد المعايير	A structured comparison when the alternatives differ on things money does not capture: safety, emissions, local employment. chapter 18
mutually exclusive	بدائل متنافية	A set of alternatives from which exactly one may be chosen, so choosing one rules out the rest. chapter 5
net income (NI)	صافي الدخل	Taxable income less income tax: the bottom line of the income statement. Add depreciation back to it to reach the ATCF. chapter 10
net proceeds	صافي حصيلة البيع	What the seller keeps after tax when an asset is disposed of: $S - t\,(S - BV)$. This, not the selling price, belongs on the cash flow diagram. chapter 10
nominal interest rate (r)	معدل الفائدة الاسمي	A rate quoted per year but compounded more often. It is a quoting convention, not the rate actually earned. chapter 3
opportunity cost	تكلفة الفرصة البديلة	The value of the best alternative given up. Committing an asset to one project costs whatever the next best use would have returned. chapter 1
optimism bias	انحياز التفاؤل	The systematic tendency of forecasts to be too favourable. It is a bias, not random error, so averaging more forecasts does not remove it. chapter 20
payback period	فترة الاسترداد	How long a project takes to return its investment. A screening device only: it ignores everything after the payback date. chapter 5

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Glossary, continued

Term	Arabic	Meaning
perpetuity	دفعات دائمة	A uniform series that continues forever. Its present worth is A/i. chapter 2
present worth (PW)	القيمة الحالية	Everything a project does, restated as a single amount at time zero. Accept a project when $PW > 0$ at the MARR. chapter 5
principal	أصل المبلغ	The amount borrowed or invested, before any interest. chapter 2
project balance	رصيد المشروع	The amount still unrecovered at the end of each period. Its plot shows when the project stops being exposed. chapter 5
real option	الخيار الحقيقي	The value of being able to change course later — defer, expand, contract, abandon — which a static present worth ignores. chapter 15
replacement analysis	تحليل الإحلال	Deciding whether, and when, to replace an asset already in service. chapter 16
salvage value (S)	القيمة التخريدية	The amount an asset is expected to sell for at the end of the study period. chapter 5
scenario analysis	تحليل السيناريوهات	Changing several inputs together into complete, internally consistent stories — pessimistic, most likely, optimistic. chapter 12
sensitivity analysis	تحليل الحساسية	Changing one input at a time to see how far the answer moves. It cannot show what happens when two inputs go bad together. chapter 12
simple interest	الفائدة البسيطة	Interest computed on the original principal only. Rare in practice; used here to show what compounding adds. chapter 2
sinking fund	صندوق الاستهلاك	A series of deposits set aside to accumulate to a known future amount, priced by $(A/F, i, N)$. chapter 2
standard deviation (σ)	الانحراف المعياري	How widely the possible outcomes scatter around their expected value. Report it with $E[PW]$; neither number means much alone. chapter 12
straight-line depreciation (SL)	الإهلاك بالقسط الثابت	Equal charges every year: $(I - S)/N$. chapter 10
study period	فترة الدراسة	The span of time over which alternatives are compared. Alternatives with unequal lives must be put on a common study period before their present worths can be compared. chapter 5
sunk cost	التكلفة الغارقة	Money already spent that no present decision can recover. It is irrelevant to every comparison, however painful that feels. chapter 1

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Glossary, continued

Term	**Arabic**	**Meaning**
tax shield	الوقاء الضريبي	The cash saved because a deduction lowered the tax bill, equal to $t\,D_n$ for depreciation. This is the whole cash value of a depreciation charge. chapter 10
taxable income (TI)	الدخل الخاضع للضريبة	Revenue less cash operating expenses less depreciation. The figure the tax rate is applied to. chapter 10
time value of money	القيمة الزمنية للنقود	The principle that a riyal available earlier is worth more than the same riyal later, because it can be put to work in between. chapter 2
uniform series (A)	سلسلة منتظمة	An amount that repeats unchanged at the end of every period. chapter 2
unit cost	تكلفة الوحدة	The annual equivalent cost divided by the annual output: what one unit of product must cover. chapter 6
value of information	قيمة المعلومات	The most a decision-maker should pay for a test, survey, or study, given that it will only sometimes change the decision. chapter 13
working capital	رأس المال العامل	Cash tied up in inventory and receivables while a project runs, released at the end. It is an investment even though nothing is bought with it. chapter 11