Reference "Landscape Watering by the Numbers - A Guide for the Arizona Desert" (Water Use It Wisely free publication)

Example for a four zone irrigation controller
(Most yards will need more than this. Make sure to have grass on a separate zone)
Zone 1 is front and side yard trees
Zone 2 is backyard grass
Zone 3 is front yard shrubs
Zone 4 is back yard shrubs

1-2-3 Rules of thumb for watering
(We actually push water into the soil for the plant to use over time. Deeper watering allows the roots to grow deeper into the soil, protecting them from the harsh dryness of the top layers of soil during our hot summers. Water evaporates from the top layers of soil before the bottom layers, so deep roots are more likely to have water when needed. Deeper watering also minimizes accumulation of salts from our hard water)
* For grass, apply 3/4" of water, to water to a depth of about 10"
* For bedding plants, apply enough water to soak in about 1 foot
* For shrubs, apply enough water to soak in about 2 feet
* For trees, apply enough water to soak in about 3 feet
* Citrus trees will benefit from having a trough and berm near the canopy edges, to allow water to fill the berm and soak in.
(Check depth of watering - 1-3 hours after watering, push a long screwdriver into the soil. Stop when it gets hard to push - this is the depth of watering. A soil probe or similar can be used for longer depths)

Desert adapted plants will need less water, tropicals and higher water use plants will use more water. Newly planted plants will initially need more water, then taper off to a normal schedule

Number of Emitters
See page 9 "Suggested Drip Emitter Quantities" for guidelines regarding number of emitters based on plant diameter.
* For trees, place multiple emitters in a circle around the edge of the canopy - roots that absorb water naturally occur here. Move the emitters out as the tree canopy increases in diameter.
* For shrubs and bedding plants, one or more emitters may be needed. This may take a little trial and error to figure out how many and flow rates, depending on the kind, size, age, and microenvironment of the plant.

Starting places -
3 foot shrub in full sun by itself in hardscape gravel - 2 one gallon/hour emitters
3 foot shrub with morning sun and afternoon shade near a few other shrubs - 1 one gallon/hour emitter
6 foot shrub in mostly sunny location, some shade and near other tall shrubs - 2 two hallon/hour emitters

Watering at a low flow rate for a longer period of time is more efficient, as it allows the soil to absorb water and provide it back to the plant later. One technique is 'cycle and soak', where the total time is broken into two or three intervals, with 1-3 hours of no watering in between (allows water to soak into the soil)

Run times
* Lawn turf - sprinkler/spray emitters should be adjusted to overlap head-head to apply an even amount of water. Use a can test (p 5-8) to measure the average amount of water (in inches) applied in a set time interval. Use this to calculate how much time it takes to apply 3/4" of water. This is your nominal run time. For my yard, it takes 14 minutes to apply 3/4" of water to the lawn. I break this into two intervals of 7 minutes each, with an hour in between each start time.

The table on page 8 can be used instead of performing calculations. For example, in my lawn, the average sprinkler output in 15 minutes was just short of 0.8 inches (on the table, this is the right-most bold number on the bottom row. My target watering requirement s 0.75", which is right between the 0.7 and 0.8 on the left column. The number in the table corresponding to 0.7 watering requirement for 0.8 sprinkler output (in 15 minutes) is 13 minutes of run time. The number in the table corresponding to 0.8 watering requirement for 0.8 sprinkler output (in 15 minutes) is 15 minutes of run time. 0.75 is halfway between .7 and .8, so my run time would be halfway between 13 and 15 minutes, or 14 minutes.

* Shrubs and trees - Pressure-compensated emitters usually have the flow rate indicated on the head - usually 1/2 gall/hr, 1 gall/hr, or 2 gal/hr. The output of an adjustable emitter or bubbler can be estimated using information on page 6. A non-pressure compensated emitter flow will vary, depending upon the water pressure at the time it is on.

The estimated amount of water needed to wet the root zone is shown in Table C on page 9. For a 3' shrub, 8 gallons of water is needed. For a 6' tree, 26 gallons of water is needed. The amount of water is adjusted based on microenvironment, soil type, and plant age - this may be trial-and-error.

Knowing the amount of water to wet the root zone, find the number of emitters and flow rates so that the time the water is on ranges from two to six hours in general (This doesn't include soaking time, where the water supply is off, and water is soaking into the ground).

Not sure what types of emitters are already in your established yard? Consider checking a part of your yard weekly, when the irrigation system is running - this can also help to check for leaks and plugged emitters as part of regular preventative care.

(Note - there may be some seasonal tweaks if the microclimate changes - for example little plants getting more shade when adjacent big plants leaf out).
* Trees - can be harmed if not irrigated properly. Use deep watering techniques and avoid shallow watering from lawn sprinklers up to the mature canopy diameter.

Run intervals
Because we want to push water into the soil to wet the root zone with each watering instance, and the water will naturally evaporate less from the surface in the cooler seasons than warmer seasons, the interval of days between watering changes seasonally. Leave the amount of water used for a watering instance the same between seasons for established plants.
Grass - if overseeded, use the Rye row seasonally

Days between waterings per water by the numbers

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bermuda	30	21	14	7	4	3	3	4	4	6	14	30
Rye	14	10	7	4	3					3	10	14

One 'recipe' for annual lawn care
Aerate Bermuda when it is actively growing, Aug/Sept
Decrease water to Bermuda near mid/end of September to get it to go drmant, scalp beginning of October
Overseed Rye when night time temps between 50-70F (or below 65F) for about a week
Use perennial rye grass, 1.5 lb/100 sq ft
Fertilome lawn starter with the seed
1/4" thick fine seed cover and mulch after seeding
Water Rye 2 minutes 3-5x per day to get seed to germinate, taper back to regular schedule after germination
May take 3 weeks to grow before mowing
Fertilize monthly (except Sept/Oct bermuda if overseeding with Rye)
Consider adding Fertilome HuMic amendment with fertilizer twice a year in spring and fall
Always water fertilizer and lawn amendments in well
Cycle and soak - our clay soils take a while to absorb water - avoid runoff

WATER USE IT WISELY

LANDSCAPE WATERING GUIDELINES

How Much & How Often Water to the outer edge of the plant's canopy and to the depth indicated. Watering frequency will vary depending on season, plant type, weather and soil.		Seasonal Frequency — Days Between Waterings				Water This Deeply (Typical Root Depth)
		Spring Mar - May	Summer May - Oct	Fall Oct - Dec	Winter Dec - Mar	
Trees	Desert adapted	14-30 days	7-21 days	14-30 days	30-60 days	24-36 inches
	High water use	7-12 days	7-10 days	7-12 days	14-30 days	24-36 inches
Shrubs	Desert adapted	14-30 days	7-21 days	14-30 days	30-45 days	18-24 inches
	High water use	7-10 days	5-7 days	7-10 days	10-14 days	18-24 inches
Groundcovers & Vines	Desert adapted	14-30 days	7-21 days	14-30 days	21-45 days	8-12 inches
	High water use	7-10 days	2-5 days	7-10 days	10-14 days	8-12 inches
Cacti and Succulents		21-45 days	14-30 days	21-45 days	if needed	8-12 inches
Annuals		3-7 days	2-5 days	3-7 days	5-10 days	8-12 inches
Warm Season Grass		4-14 days	3-6 days	6-21 days	15-30 days	6-10 inches
Cool Season Grass		3-7 days	none	3-10 days	7-14 days	6-10 inches

These guidelines are for established plants (1 year for shrubs, 3 years for trees). Additional water is needed for new plantings or unusually hot or dry weather. Less water is needed during cool or rainy weather. Drip run times are typically 2 hours or more for each watering.

Example watering schedule for low water use, desert adapted plants.
Citrus, hibiscus, etc are high water use plants and will need a different interval to establish

WATERING SCHEDULE FOR NEWLY PLANTED DESERT ADAPTED PLANTS*

Weeks 1 & 2	Water every 1-2 days in summer, every 3-4 days fall through spring
Weeks 3 & 4	Water every 3-4 days in summer, every 6-7 days fall through spring
Weeks 5 & 6	Water every 4-6 days in summer, every 7-10 days fall through spring
Weeks 7 & 8	Water every 7 days in summer, every 10-14 days fall through spring
After week 8	Gradually extend the time between irrigations until plants are established

Note: After the eighth week, move the drip emitters to the outer edge of the root ball.
* High water use plants will require more frequent irrigations.