



Auto-Scheduling Algorithm Guide

A Guide for HR and Management — Version 4 (5-Week Rotation)

Overview

Xrota uses a **5-week rotating schedule** that provides predictable, consistent shifts for staff while ensuring fair distribution of weekend work and shift types across the team.

Key Benefits:

- Staff know their shift pattern weeks in advance
- Everyone works the same shift type all week (no daily changes)
- Weekend work is shared equally — exactly 2 weekends per person over 5 weeks
- All days off are consecutive (no split days off)

How It Works

The 5-Week Cycle

The schedule operates on a repeating 5-week cycle. Each week, staff are divided into two groups:

Weekend Workers (2 people)	Weekday-Only Workers (3 people)
<p>Work Saturday and Sunday</p> <p>Get 2 consecutive weekdays off</p> <p>Work Floating shifts on their other weekdays</p>	<ul style="list-style-type: none">• Work Monday to Friday only• Have Saturday and Sunday off• Work the same shift type all 5 weekdays (Early, Mid, or Late)

For Each Staff Member, Every Week:

- Exactly **37.5 working hours** (5 shifts × 7.5 hours)
- Exactly **2 consecutive days off**
- **12 hours minimum rest** between shifts (guaranteed by consistent shift blocks)

Weekend Rotation

Fair Weekend Distribution: Over every 5-week cycle, each staff member works exactly **2 weekends**.
The rotation is fixed to ensure complete fairness.

Each weekend requires exactly 2 staff:

- **One person works Early** (08:00-16:30) on both Saturday and Sunday
- **One person works Late** (12:00-20:30) on both Saturday and Sunday

Weekend workers receive their 2 days off during the week instead:

- Either **Monday-Tuesday** off, or **Thursday-Friday** off

The two weekend workers always have different weekday days off to ensure coverage.

Shift Types

Shift	Hours	Time	When Used
Early	7.5 hrs	08:00 - 16:30	Opens the business; weekday blocks + weekend coverage
Mid	7.5 hrs	10:00 - 18:30	Covers midday peak; weekday blocks only
Late	7.5 hrs	12:00 - 20:30	Closes the business; weekday blocks + weekend coverage
Floating	7.5 hrs	08:30 - 17:00	For weekend workers on their weekday shifts

Note: Floating shifts provide flexible coverage during core hours.

Coverage Requirements

Weekdays (Monday - Friday)

- **Minimum 1 coverage shift** (Early, Mid, or Late) at all times
- **Maximum 3 coverage shifts** at any time
- Floating shifts can be added without limit

Weekends (Saturday - Sunday)

- **Exactly 2 staff** — one Early, one Late
- No Floating shifts on weekends
- This ensures the business is covered from 08:00 to 20:30

Example 5-Week Schedule

Here's how shifts rotate over a complete 5-week cycle:

Week	Weekend Workers	Staff A	Staff B	Staff C	Staff D	Staff E
1	A + B	Float+wknd	Float+wknd	Early ×5	Late ×5	Mid ×5
2	C + D	Late ×5	Early ×5	Float+wknd	Float+wknd	Mid ×5
3	E + A	Float+wknd	Late ×5	Early ×5	Mid ×5	Float+wknd
4	B + C	Mid ×5	Float+wknd	Float+wknd	Early ×5	Late ×5
5	D + E	Early ×5	Mid ×5	Late ×5	Float+wknd	Float+wknd

"Float+wknd" = Floating shifts on weekdays with Early or Late on Saturday/Sunday

5-Week Totals (identical for all staff):

- Early: 7 shifts | Mid: 5 shifts | Late: 7 shifts | Floating: 6 shifts
- **Total: 25 shifts = 187.5 hours**

Rest Requirements

12-Hour Rest Rule:

Staff must have at least 12 hours between the end of one shift and the start of the next.

- **No Late shift followed by Early shift** the next day (would be only 11.5 hours rest)
- The consistent shift block system naturally prevents this — if you're on Early all week, you never have a Late-to-Early transition

Note: If you manually edit the schedule, Xrota will warn you if an edit would violate the 12-hour rest rule.

Shift Variety

The system tracks which shift types each person has worked and automatically balances variety over time:

- Staff who haven't done a particular shift recently are prioritised for it
- No one gets stuck doing the same shift type repeatedly
- The algorithm alternates between "early preference" and "late preference" weeks

Using Xrota

Generating Schedules

- **"Generate This Week"** — Creates a schedule for the current week only
- **"Generate 5 Weeks"** — Creates a complete 5-week cycle (recommended)

Best Practice: Generate 5 weeks at once to ensure the full rotation cycle is complete and weekend distribution is balanced.

Making Manual Changes

1. Click on a shift button (Early, Mid, Late, Floating, or Day Off)
2. Click on the cell in the schedule you want to change
3. The system will warn you if the change creates any issues

Printing Schedules

- Click "Print Schedule" to print the current week or a range of weeks
- Multi-week prints include a shift distribution summary

Warnings You Might See

Warning	What It Means
"Days off are not consecutive"	Staff has 2 days off but they're split (usually from manual edits)
"Only X hrs assigned"	Staff couldn't reach 37.5 hours — check for missing shifts
"Coverage gap"	A time slot has no staff coverage — needs attention
"Rest violation"	Less than 12 hours between shifts (e.g., Late then Early)
"Weekend coverage issue"	Weekend doesn't have exactly 1 Early + 1 Late shift

Handling Absences

When a staff member is unavailable (holiday, sickness, etc.):

If a Weekend Worker is Absent:

- Swap them with a weekday-only worker
- The replacement takes their weekend Early or Late shifts
- Adjust the replacement's days off to consecutive weekdays

If a Weekday Worker is Absent:

- Another weekday worker can take their shift block
- Use Floating shifts to fill any remaining gaps
- The system will flag any coverage issues

Summary

The 5-Week Rotation System ensures:

- Everyone works exactly 37.5 hours per week
- Everyone gets 2 consecutive days off per week
- Everyone works exactly 2 weekends per 5-week cycle
- Consistent shift patterns within each week (same shift type daily)
- Fair distribution of Early, Mid, and Late shifts over time
- Proper coverage from 08:00 to 20:30 every day

Xrota Staff Scheduling System — Version 4

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