

ShivAI Supply Chain Solutions

PRODUCTION SCHEDULING INTELLIGENCE – SINGLE PLANT

Your Shop Floor Runs on Chaos. This Fixes That.

ShivAI Job Shop Scheduler — AI-powered scheduling that handles the real conditions on your shop floor: machine breakdowns, rush orders, shift changes, tool constraints, and operator availability. Not a static plan. A living schedule. Runs on your Windows desktop — no internet, no cloud.

THE PROBLEM

What Happens Without a Scheduler


₹12-18 Lakhs/yr Lost To idle machines while others are overloaded. Your foreman balances load in his head.	23% Jobs Delivered Late Rush orders blow up the entire week's plan. Customers escalate. Penalties pile up.
4-6 Hours/Week Wasted Manually re-planning on whiteboards or Excel when a machine breaks down mid-shift.	Zero Visibility No one knows which jobs will be late, which machines are bottlenecks, or what the real cost is.


THE SOLUTION


8 AI Algorithms. 10+ Dynamic Constraints. 1 Click.


Upload your Excel job data. ShivAI runs 8 classical heuristics AND AI optimisation methods — NEH, Iterated Greedy, Genetic Algorithms, Tabu Search — and picks the best schedule. Then it handles what happens AFTER the plan is made.


KEY CAPABILITIES

 **Dynamic Re-Scheduling** Machine breaks at 2pm? JSS scans all jobs — marks completed, identifies in-progress, re-schedules everything pending. Two-pass status detection restarts from any point in time.

 **Algorithm Mode Selector** Auto (NEH + Iterated Greedy, ~10 sec) · Fast (8 heuristics, <1 sec) · Deep (DE + GA) · Manual. Daily use is one click. Power users can go deep.

 **Real-World Constraints** Shift patterns (multi-shift, overnight, per-day). Tool/fixture constraints with quantity tracking. Inspector availability. Material arrival delays. Preventive maintenance windows.

 **Urgent Order Preemption** Rush order arrives? JSS pre-empts running jobs — finishes the current batch, yields the machine for the urgent job, then resumes the interrupted job with remaining quantity.

 **Machine Intelligence** Parallel machine groups with flexible assignment. Per-machine efficiency factors, priority ranking, setup time. Load balancing or priority-based allocation. Per-machine cost rates (₹/hr).






 **Decision Dashboard** KPI cards (on-time %, makespan, utilisation, tardiness, INR cost). Interactive Gantt with critical path. Machine utilisation heatmap. Multi-method comparison. Excel export.

 **Schedule History & Analytics** Every run saved to local database. Compare makespan, utilisation, and on-time % across runs. Spot trends over time. Know which algorithm works best for your job mix.

HOW IT WORKS

5-Step Wizard — Upload to Results in Minutes

1. Upload Drop your Master Job Excel with Jobs, Machine Config, Shift Definition and more.	2. Select Pick which jobs to schedule. Filter by priority, due date, or machine group.	3. Configure Set schedule start time. Choose Algorithm Mode. Optionally set restart checkpoint .	4. Conditions Define breakdowns, urgent arrivals, material delays, maintenance — real shop conditions .	5. Run All methods run. Dashboard shows Gantt , heatmap, KPIs, comparison. Download Excel.
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 MAKESPAN 235.7h 14,143 min total	 UTILISATION 12.3% 31 machines · 402.4h	 ON-TIME DELIVERY 42% 10/24 jobs on time	 TOTAL TARDINESS 1,384,988min Delay vs due dates	 COST ESTIMATE ₹3.15L Machine rates · ₹350/hr default
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Excel Dashboard Report — Key Performance Indicators

All Methods Compete. Best Schedule Wins.

<p><i>Classic Heuristics (Baseline)</i></p> <p>+</p> <p><i>AI & Meta-Heuristic (Optimisation)</i></p>	<ul style="list-style-type: none"> • NEH — constructive heuristic warm-start • Auto-IG (Iterated Greedy + NEH) — destroy & rebuild, ~10 sec • Differential Evolution — evolutionary optimiser • Genetic Algorithm (OX) — order crossover + mutation • Tabu Search — neighbourhood search with memory • PSO — Particle Swarm intelligence • ALNS — 4 destroy operators with adaptive weights • Q-Learning — reinforcement learning scheduling agent
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Dashboard Report — Comparison of AI optimisation and heuristic methods

WHO IT'S FOR

Built for Indian MSME Manufacturers

<p> Job Shops</p> <p>CNC machining, tool & die, precision engineering, print & packaging — variable job mixes, tight due dates.</p>	<p> Batch Manufacturing</p> <p>Auto components, metal fabrication, pharma intermediates, plastics — batch sizes and sequence matter.</p>
<p> Assembly Operations</p> <p>Electronics, electrical panels, machinery, consumer durables — multi-stage with inspection and material dependencies.</p>	<p> Small to Mid-Size Plants</p> <p>₹50–500 Cr revenue. 5–100 machines. No SAP, no ERP scheduler. Excel is your MRP. This is your upgrade.</p>

PRICING

Choose Your Scale — 30-day Pilot included (₹4,999)

<p>Basic</p> <p>₹3,999/mo</p> <p>₹39,830/yr with annual billing</p> <ul style="list-style-type: none"> ✓ 30 jobs · 8 machines ✓ NEH + Iterated Greedy (Auto mode) ✓ All 8 classical heuristics ✓ Shift patterns + tool constraints ✓ Gantt chart + Excel export ✓ Schedule history & analytics 	<p>★ Business</p> <p>₹7,999/mo</p> <p>₹79,670/yr with annual billing</p> <ul style="list-style-type: none"> ✓ 120 jobs · 25 machines ✓ All 8 AI optimisation methods ✓ Full dynamic constraints ✓ Material availability + maintenance ✓ Inspector unavailability ✓ Urgent order preemption ✓ Restart checkpoint scheduling ✓ Advanced analytics dashboard 	<p>Enterprise</p> <p>₹9,999/mo</p> <p>₹99,590/yr with annual billing</p> <ul style="list-style-type: none"> ✓ Unlimited jobs · Unlimited machines ✓ Machine breakdown simulation ✓ Multi-schedule comparison ✓ Everything in Business ✓ Priority support ✓ Free updates (1 year) ✓ On-site training (Coimbatore)
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All plans include: 30-day Pilot · Excel import/export · Hardware-locked license · Windows Desktop · 17% discount on annual billing

POWER YOUR SCHEDULES WITH SIMPLICITY

Schedule with real-time constraints

Start your 30-day Pilot (₹4,999) | contact@shivaiscsolutions.com | www.shivaiscsolutions.com