Notation Reference
Deterministic
Number of jobs: n
Number of machines: m
Job usually denoted by j
Machine usually denoted by i
Processing time for job j on machine i: p_{ij}
Release date: r_j
Due date: d_j
Weight denoting importance of job: w_j.
Problem denoted by triple $\alpha|\beta|\gamma$ where α describes machine environment, β is processing characteristics, γ is objective to be minimized
Single machine: 1
Identical machines in parallel: Pm
Machines in parallel with different speeds: Qm speed is denoted by v_i
Unrelated machines in parallel: Rm. Machine i can process j at speed v_{ij}
Flow shop: Fm, all jobs have to follow same route through machines.
Flexible flow shop: FFc there are parallel columns of machines in series
Job shop Jm each job follows its own predetermined route
Flexible job shop: FJc
Open shop: Om there are m machines and each job needs to be processed by all of them but can be done in any order
Preemptions: $prmp$ It is not necessary to keep a job in a machine until completion
Precedence constraints: $prec$ Jobs have precedence
Sequence dependent setup times: s_{jk}
Job families: $fmls$. Jobs in one family can be processed without any setup between but switching families caused setup time
Batch processing $batch(b)$
Breakdowns $brkdwn$
Machine eligibility restrictions: M_j only M_j machines can process job j
Permutation: $prmu$ FIFO
Blocking: $block$
No-wait: (nwt) Jobs can't wait between two successive machines
Recirculation: $rcrc$ A job can visit a machine more than once
Completion time of job j on machine i: C_{ij}
Time when job j exits system: C_j
Lateness: $L_j = C_j - d_j$
Tardiness: $T_j = \max(C_j - d_j, 0) = \max(L_j, 0)$
Unit penalty:

$$U_j = \begin{cases} 1 \text{ if } C_j > d_j \\ 0 \text{ otherwise} \end{cases}$$

Makespan: $C_{\max} = \max(C_1, \dots, C_n)$ time of last job to leave system
Maximum lateness: $L_{\max} = \max(L_1, \dots, L_n)$
Total weighted completion time: $\sum w_j C_j$
Discount total weighted completion time: $\sum w_j (10e^{-rC_j})$
Total weighted tardiness: $\sum w_j U_j$

Weighted number of tardy jobs $\sum w_j U_j$
Earliness: $E_j = \max(d_j - C_j, 0)$