

◆ **MATERIAL VARIANCES:**

1. Material Cost Variance: $(SQ \times SP) - (AQ \times AP)$
2. Material Price Variance: $AQ \times (SP - AP)$
3. Material Usage Variance: $SP \times (SQ - AQ)$

Check: $MCV = MUV + MPV$

4. Material Mix Variance = $(RSQ - AQ) \times AP$

Where, RSQ (Revised Std. Qnty) = $\frac{\text{SQ of one material}}{\text{Total of Std. Qnty of all materials}} \times \text{Total of actual Qnty of all materials}$

5. Material Revised Usage Variance: $(SQ \times RSQ) \times SP$
6. Material Yield Variance: $(AY - SY) \times SOP$ [Std. O/p Price]

Check: $MUV = MUV + MPV$

◆ **LABOUR VARIANCES:**

1. Labour Cost Variance: $(SH \times SR) - (AH \times AR)$
2. Labour Rate Variance : $AH \times (SR - AR)$
3. Labour Efficiency (or time) Variance: $SR (SH - AH)$

Check: $LCV = LEV + LRV$

Labour efficiency variance is further divided into the following variances:

- (i) Idle time variance: $\text{Idle hrs} \times SR$
- (ii) Labour mix variance: $(\text{Revised std. hrs.} - AH) \times SR$
- (iii) Labour revised efficiency variance: $(SH - RSH) \times SR$
- (iv) Labour yield variance: $(AY - SY) \times SLC$ [Std. labour cost per unit of o/p]

Check: $LEV = ITV + LMV + LYV$

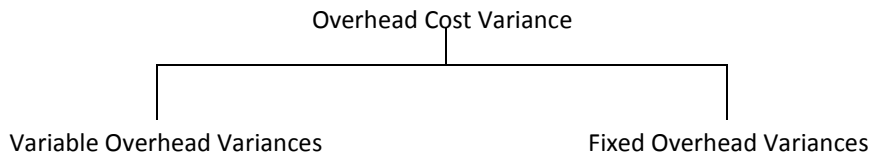
◆ **OVERHEAD VARIANCES:**

Standard overhead rate (per hr.) = $\frac{\text{Budgeted o/h}}{\text{Budgeted hrs.}}$ OR $\frac{\text{Budgeted o/h}}{\text{Budgeted o/p in units}}$

Note: Separate o/h rates will be computed for fixed and variable o/hs

The basic calculation should be made before computing variances:

- (i) When overhead rate per hour is used:
 - (a) Std. Hrs. for actual o/p [SHAO]: $\frac{\text{Budgeted Hrs.}}{\text{Budgeted o/p}} \times \text{Act. o/p}$
 - (b) Absorbed (or Recovered) o/h: $SH \text{ for Act. o/p} \times \text{Std. o/h rate per hr.}$
 - (c) Std. overhead: $AH \times \text{Std. overhead rate per hr.}$
 - (d) Budgeted overhead: $\text{Budgeted Hrs.} \times \text{Std. overhead rate per hr.}$
 - (e) Actual overhead: $\text{Act. Hrs} \times \text{Actual overhead rate per hr.}$
- (ii) When overhead rate per unit is used:
 - (a) Std. output for actual hrs [SOAH]: $\frac{\text{Budgeted output (in units)}}{\text{Budgeted Hrs}} \times \text{Act. Hrs.}$
 - (b) Absorbed overhead: $\text{Act. o/p} \times \text{Std. o/h rate per unit}$
 - (c) Std. overhead: $\text{Std. o/p for actual time} \times \text{Std. overhead rate per unit}$
 - (d) Budgeted overhead: $\text{Budgeted o/p} \times \text{Std. overhead rate per unit}$
 - (e) Actual overhead: $\text{Act. o/p} \times \text{Actual overhead rate per unit}$
 - Overhead cost variance: $\text{Absorbed overhead [Std. hrs for Actual o/p]} - \text{Act. Overhead}$



- Variable Overhead Cost Variances: (Absorbed variable overhead – Actual variable overhead)
This variance is sub-divided into the following two variances:
 - (a) Variable overhead expenditure variance or spending variance or budget variance:
(Standard variable overhead – Actual variance overhead)
 - (b) Variable overhead efficiency variance: (Absorbed variable overhead – Std. variable overhead)
 Check: $VOCV = VOEXV + VOEFV$

- Fixed Overhead Cost Variances: (Absorbed overhead – Actual overhead)
This variance is sub-divided into the following two variances:
 - (c) Fixed overhead expenditure variance: (Budgeted Fixed overhead – Actual Fixed overhead)
 - (d) Fixed overhead volume variance: (Absorbed overhead – Budgeted overhead)
 Check: $FOCV = FOEV + FOVV$
 - Fixed overhead volume variance is further divided into the following variances:
 - (a) Efficiency variance: (Absorbed fixed o/h – Std. fixed o/h)
 - (b) Capacity variance: (Std. fixed o/h – Budgeted o/h)
 - (c) Calendar variance: (Act. No. of working days – Std. No. of working days) x Std. fixed rate per day
OR (Revised budgeted Hrs. – Budgeted Hrs.) x Std. fixed rate per Hr.
 Where, Revised budgeted Hrs. = $\frac{\text{Budgeted Hrs.}}{\text{Budgeted Days}} \times \text{Actual days}$

Note: When calendar variance is computed, there will be modification in the capacity variance and will be calculated:

Revised capacity variance: (Act. Hrs. – Revised budgeted Hrs.) x Std. fixed rate per hr.

Check: $FOVV = \text{Efficiency Variance} + \text{Capacity Variance} + \text{Calendar Variance}$

◆ **RATIO ANALYSIS:**

1. Efficiency Ratio:	$\frac{\text{Output expressed in term of std. hrs.}}{\text{Act. Hrs. worked for producing that o/p}} \times 100$
2. Activity Ratio:	$\frac{\text{Actual output in Std. Hrs.}}{\text{Budgeted output in Std. Hrs.}}$ <u>OR</u> Capacity Ratio x Efficiency Ratio
3. Calendar Ratio:	$\frac{\text{Actual number of working days in a period}}{\text{No. of working days in related budget period}} \times 100$
4. Actual Capacity Usage Ratio:	$\frac{\text{Actual Hrs. worked}}{\text{Max. possible Hrs. in a period}} \times 100$
5. Actual Usage of Budgeted Capacity Ratio:	$\frac{\text{Actual Working Hrs.}}{\text{Budgeted Hrs.}} \times 100$
6. Standard Capacity Usage Ratio:	$\frac{\text{Budgeted Hrs.}}{\text{Max. possible No. of working Hrs. in budgeted period}} \times 100$