EARNED VALUE

Measurement	Formulae	Description
Budget At Completion (BAC)	**None**	The original estimated (planned) Project Cost
Planned Value (PV)	**PV=Planned % complete X BAC**	Indicates amount of work which "SHOULD have been completed" or "Authorized work for completion" as per plan at any point
Earned Value (EV)	**EV= Actual % complete X BAC**	Actual work that is accomplished at any point
Actual Cost (AC)	**AC= Cumulative money spent till date**	The actual money spent at any point of time
Cost Variance (CV)	**CV=EV-AC**	The difference between how much was actually Earned and how much was actually spent
Schedule Variance (SV)	**SV = EV-PV**	The difference between planned schedule Vs Actual Schedule
Cost Performance Index (CPI)	**CPI = EV / AC**	Indicates the project performance for every $ spent
Schedule Performance Index (SPI)	**SPI = EV / PV**	Indicate actual schedule progress of the against the planned schedule
Estimate At Completion (EAC)	**a. EAC = BAC / Cumulative CPI** **b. EAC = AC + ETC**	The revised project Budget for completion based on current performance indicators
Estimate To Complete (ETC)	**ETC = EAC – AC**	How much more (cost) would be needed to complete the project based on current performance indicators
Variance At Completion (VAC)	**VAC = BAC – EAC**	The difference between the budgeted cost and revised estimates based on current performance indicators
To-Complete Performance Index (TCPI)	**TCPI = (BAC-EV) / (BAC-AC)**	Project Performance required to be achieved in order to stay within the original budget using the remaining funds
Percentage Complete	**EV/BAC X 100**	Percentage of Project Completed
Percentage money spent	**% spent = AC/BAC*100**	Actual money spent till date expressed in %

PERT

Measurement	Formulae	Description
3 Point Estimate	**(P+4M+O)/6**	Weighted average method of estimation technique where P= Pessimistic, M = Most Likely, O= Optimistic

ESTIMATES

Measurement	Range	Description
Rough Order of Magnitude Estimate	**-25% TO +75%**	Applicable and valid during initial phases of project when the work is not much understood and there are lot of unknowns about the project
Preliminary Estimate	**-15% TO + 50%**	Estimates based on high level initial details of the project
Budgetive Estimate	**-10% TO + 25%**	The estimates during planning stage of the project
Definitive Estimate	**-5% TO +10%**	The estimates during project and is used only if the work is well understood

TIME MANAGEMENT

(Assumed that the ES of first project activity is considered as 1)

Measurement	Formulae	Description
ES	**EF of previous activity + 1**	Early Start (ES) for an activity is the Early Finish (EF) of its predecessor activity + 1. If an activity has more than one predecessor, then the highest EF to be considered to derive the ES
EF	**EF = ES + Duration - 1**	Early Finish (EF) can be derived by adding ES + Activity duration
LS	**LS = ES + Float**	Late Start (LS) is the Early Start + Float (if any)
LF	**LF = LS+Dur-1**	Late Finish is the Late Start + Activity Duration - 1
Float or Slack	**FLOAT = LS-ES or LF-EF**	maximum of time an activity can slip without affecting the end date of the project
Free Float		the amount of time a activity can be delayed without delaying the early start date of its subsequent activities
Activity Duration	**Duration = EF – ES or LF – LS**	Duration is the difference between the activity start and end dates.
Total Float	The total time a project can be delayed without delaying the project end date	
Lead	A successor activity can only begin by the amount of lead time of its predecessor activity. Allows “Acceleration” of successor activity	

Lag	The amount of time an successor activity will wait after the completion of its successor before it can begin. **"Delays"** the Successor Activity
Critical Path	The Longest path in a network diagram and is also the minimum amount of time needed for the completion of the project. Also it shows the minimum amount of time required to complete the project.

PROJECT SELECTION

Measurement	Formulae	Description
Present Value (PV)	**PV = FV / $(1+r)^n$**	Present Value of an investment expressed in $ value
Net Present Value (NPV)	**NPV = (Total Inflows – Investment).**	Net present value of cash inflows generated over a period of time (including value of salvages…) less the initial investments of the project. i.e (cash inflows from investment) – (cash outflows or cost of investment). Project with higher NPV is better and preferred.
ROI	Choose the project with high Return of Investment (ROI)	
IRR	Monetary Yield of a Project expressed as an Rate (Returns). Choose the project with high Internal Rate of Return (IRR)	
Payback Period	The time taken for project to start yielding profit. Projects with shorter payback periods should be chosen.	
Benefits Cost Ratio (BCR)	A project with higher BCR is chosen. BCR > 1 means higher Benefits compared to Costs. BCR < 1 means lower Benefits compared to Costs	
Cost Benefit Ratio (CBR)	A project with lesser CBR is chosen. CBR > 1 means higher Costs compared to Benefits. CBR < 1 means lower costs compared to Benefits	
Opportunity Cost	The value of the project not chosen	

COMMUNICATIONS

Measurement	Formulae	Description
Communications Channels	**n X (n-1)/2**	Number of communication channels increases as the number of members of the teams. Complexity of managing communications increases as the team increases.

PROBABILITY

Measurement	Formulae	Description
Communications Channels	**n X (n-1)/2**	Number of communication channels increases as the number of members of the teams. Complexity of managing communications increases as the team increases.

PROCUREMENT

Measurement	Formulae	Description
Point of Total Assumption (PTA)	**PTA = ((Ceiling Price - Target Price) / Buyer's Share Ratio) + Target Cost**	Point of Total Assumption is a price determined by a fixed price plus incentive fee contract (FPIF) above which the seller bears all the loss of a cost overrun

Sigma

Measurement	Description
Sigma / **Percent Defective** / **Defects per Million** 1 / 69% / 691,462 2 / 31% / 308,538 3 / 6.7% / 66,807 4 / 0.62% / 6,210 5 / 0.023% / 233 6 / 0.00034% / 3.4	The sigma scale is a universal measure of how well a critical characteristic performs compared to its requirements. The higher the sigma score, the more capable the characteristic