OptimizeSystem[system, options] optimizes the
performance of an optical system for a specified set of input parameters.

OptimizeSystem first calls ConstructMeritFunction to create a RayTraceFunction according to the MeritType
option setting and then calls a minimization algorithm according to the MinimizationType option.
MeritType is internally converted into particular settings for the ReportedParameter and ReportedFunction
options. As an alternative to using the MeritType option, the user can instead work directly with the
ReportedParameters and ReportedFunction options. In addition to accepting an optical system of light
sources and components, one or more previously calculated results from ConstructMeritFunction
may be directly passed to OptimizeSystem. If more than one ConstructMeritFunction result
is passed, OptimizeSystem uses the combined merit results to perform the minimization.

See also: ConstructMeritFunction, MeritType, MinimizationType, TurboTrace, and RayTraceFunction.

```
soln = OptimizeSystem[sys, SequentialTrace -> True]
{SymbolicValues -> {r1 -> 59.3988, r2 -> -392.903}, NumberOfCycles -> 437, FinalMerit -> 0.264563}

TurboPlot[turbosys, PlotType -> TopView, soln];
```

(* Drag Red Locator buttons to move the lens or screen. Use the sliders to change the radii of
lens. Click on the Optimize button to optimize the system *)
ManipulateSystem[
  {LineOfRays[45, NumberOfRays -> 6],
   Move[SphericalLens[{{rr1, 200}, {rr2, -200}, 50, 10}, {x, 100}],
     Move[Screen[50], {xscreen, 200}]], {{rr1, 200}, 50, 900}, {{rr2, -200}, -100, -900},
     DynamicFrame[PlotType -> TopView, Axes -> True], DynamicFrame[PlotType -> OptimizeSystem]]

rr1[ ] 753.
rr2[ ] -134.

TopView

Optimize

rr1[ ] rr2[ ] x[ ] xscreen[ ] using FindMinimum at Last e

<table>
<thead>
<tr>
<th>rr1</th>
<th>rr2</th>
<th>x</th>
<th>xscreen</th>
<th>Cycles</th>
<th>Merit</th>
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<tbody>
<tr>
<td>753</td>
<td>-134</td>
<td>66.7582</td>
<td>289.623</td>
<td>24</td>
<td>0.165609</td>
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</tbody>
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