ECE 1410 Points, Circles, and Cylinders Requirements

Your task is to write three classes named Point, Circle, and Cylinder. Each should have a .h and a .cpp file. Point is the base class. Circle inherits from Point. Cylinder inherits from Circle.

Each class needs a constructor and an overloaded insertion operator (<<).

The following main.cpp file:

```cpp
#include <iostream>
#include "point.h"
#include "circle.h"
#include "cylinder.h"

using namespace std;

int main()
{
    Point p(4,4);                   // x coordinate, y coordinate
    Circle c(5,5,5);                // x, y, radius
    Cylinder y (6, 6, 6, 6);        // x, y, r, height

    cout << p << endl << endl;
    cout << c << " " << endl << (Point) c << endl << endl;
    cout << y << " " << endl << (Circle) y << " " << endl << (Point) y
         << endl << endl;

    return 0;
}
```

produces this output:

```
Point at (4, 4)

Circle with center = (5, 5); Radius = 5; Area = 78.5397
Point at (5, 5)

Cylinder with center = (6, 6); Radius = 6; Height = 6; Volume = 678.583
Circle with center = (6, 6); Radius = 6; Area = 113.097
Point at (6, 6)
```

Submit 6 files (point.h, point.cpp, circle.h, circle.cpp, cylinder.h, and cylinder.cpp) combined as a single zip file. The graders will compile your source along with their main.cpp to test program functionality.