

**Karnaugh (K) Map Simplified Rules  
for Sum-of-Products (SOP) Simplification**

**ECEN 3233: Digital Logic Design**

**Fall 2009**

- 1.) Use fewest number of circles to cover all 1s
- 2.) All the circles must contain 1s.
- 3.) Each circle must span a block that is a power of 2.
  - a. [1, 2, 4, 8, 16, ...,  $2^n$ ]
- 4.) A circle can wrap around an edge of a K-map
- 5.) A 1 in a K-map may be circled more than once if doing so allows fewer circles to be used.