

The LFSR code can be like this

```
ap_uint<24> pseudo_random(ap_uint<24> seed, bool load) {  
  
    static ap_uint<24> lfsr;  
  
    if (load ==1 )  
        lfsr = seed;  
    //P(x)= x^24 + x^23 +x^22+x^17 + 1  
    bool b_24 = lfsr.get_bit(24-24);  
    bool b_23 = lfsr.get_bit(24-23);  
    bool b_22 = lfsr.get_bit(24-22);  
    bool b_17 = lfsr.get_bit(24-17);  
    bool new_bit = b_24 ^ b_23 ^ b_22 ^ b_17;  
    lfsr = lfsr >> 1;  
    lfsr.set_bit(23, new_bit);  
  
    return lfsr;  
}
```