Course Schedule

Week	Lecture Topics
1	Course introduction and goals
2	Design, components, materials, and operating conditions of fuel rods
3	Fuel rod performance characteristics
4	Thermal-hydraulic conditions and fuel rod thermal response
5	Related neutronics parameters (power and burnup), and fuel safety criteria and margins
6	Fuel rod mechanical response
7	Fuel rod internal gas pressure response
8	Waterside corrosion and hydrogen pickup
9	Fuel behavior under irradiation in view of high-burnup practices
10	Fuel behavior under transient and LOCA conditions
11	Advanced fuel designs
12	Fuel modeling in sub-channel and system thermal-hydraulic codes
13	Fuel performance codes – models, solution methods and input requirements
14	Predictive bias, sensitivity and uncertainty in fuel modeling
15	High-fidelity multi-physics models of fuel performance