

N15 Timetable 2023-24

Day	Subject	Lecturer
Monday	<p>Morning provides an introduction to severe accidents, covering basic safety principles and a brief history.</p> <p>Afternoon will provide the student with a ground work in thermodynamics and thermal-hydraulics that will support forthcoming lectures.</p>	Dr. M. Turner
Tuesday	<p>Morning covers an introduction to phase diagrams and the oxidation of core materials that occurs when exposed to high temperature stream following core uncover.</p> <p>Afternoon explores the deformation processes when the cladding is under thermal and mechanical stress which can lead to an early release of fission products. The embrittlement of the cladding is considered in the context of how embrittlement effect the prospect of a successful core reflood.</p>	Dr. M. Turner
Wednesday	<p>Morning introduces the mechanisms by which fission products can be released from a UO<sub>2</sub> fuel pellet. A flagship lecture is presented on detailed processes that occur during a core melt-down.</p> <p>Afternoon explores the in-vessel phenomenology that can occur after the core has lost form. This includes the quench of debris and the piling of a debris bed, followed by the ultimate formation of a molten “corium” pool.</p>	Dr. M. Turner
Thursday	<p>Morning introduces the mechanics of RPV failure which leads to the expulsion of molten material into the ex-vessel environment where the concrete base-mat could become exposed to molten material.</p> <p>Afternoon concentrates on aerosol physics and chemistry which is relevant to the radiological severity of the accident.</p>	Dr. M. Turner
Friday	<p>Morning introduces the prospect of a hydrogen explosion which concludes the pre-dispersion phenomenology. Many of the phenomena covered in the course can be modelled using leading industry computer codes which are introduced.</p> <p>Afternoon concludes the technical content of the course with a brief introduction to radiological dispersion. The course assignment will be introduced and course will wrap up and close.</p>	Dr. M. Turner