



Reactor Physics Course at VR-1 Reactor

30.11 – 04.12. 2015

Monday November 30, 2015

Time	Activity
9:00 - 12:00	Welcome meeting
	<ul style="list-style-type: none">• Course opening, course goals & scope, organizational issues• Organizational issues Visit of the VR-1 Reactor <ul style="list-style-type: none">• Basic information about the VR-1 reactor• Design of the reactor VR-1, I&C, fuel IRT-4M• Walkthrough of the reactor facility
12:00 - 13:00	Lunch
13:00 - 16:00	Neutron detection
	<ul style="list-style-type: none">• Gas filled neutron detectors• Dead-time and differential characteristic• Distribution of the neutron flux in the reactor

Tuesday December 1, 2015

Time	Activity
9:00 - 12:00	Delayed neutrons detection
	<ul style="list-style-type: none">• Determination of delayed neutrons properties• Determination of fissionable material mass using delayed neutrons detection
12:00 - 13:00	Lunch
13:00 - 16:00	Reactivity measurement
	<ul style="list-style-type: none">• Reactivity measurement by various methods:<ul style="list-style-type: none">- Source Jerk method and Rod Drop method,- Positive period method- Source multiplication method



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Wednesday December 3, 2015

Time	Activity
9:00 - 12:00	Study of the reactor dynamics I
	<ul style="list-style-type: none">• Reactor behavior in critical, supercritical and sub critical state with and without the external neutron source• Influence temperature effects on behavior and operation of nuclear reactor - determination of thermal and reactor void coefficient
12:00 - 13:00	Lunch
13:00 - 16:00	Study of the reactor dynamics II
	<ul style="list-style-type: none">• Reactor responses to different reactivity changes• Reactor behavior to the periodic reactivity changes• Pulse, transient and oscillation characteristics measurement

Thursday December 3, 2015

Time	Activity
9:00 - 12:00	Criticality experiment – approaching the critical state
	<ul style="list-style-type: none">• Approaching the critical state at the VR-1 reactor• Prediction of the critical position of the control rod
12:00 - 13:00	Lunch
13:00 - 16:00	Control rod calibration
	<ul style="list-style-type: none">• Control rod calibration by inverse rate method• Control rod calibration by reactimeter• Reactivity excess and shutdown margin

Friday December 4, 2015

Time	Activity
9:00 - 11:30	Digital control and safety systems of the VR-1 reactor
	<ul style="list-style-type: none">• Demonstration of control system functions• Training of VR-1 reactor control by students
11:30 - 12:30	Lunch
12:30 - 13:30	Exit Meeting
	<ul style="list-style-type: none">• Discussion & Conclusions