

PH.D. PRE-COURSE WORK EXAMINATION SYLLABUS

Paper II: Recent Advances in Emergency Medical Technology

Sr. No.	Topic	Details	Hours
1	Advanced Cardiac Life Support	<ul style="list-style-type: none"> - Mechanical CPR devices - Extracorporeal CPR (ECPR) - Post-cardiac arrest care bundles - Novel pharmacological interventions in cardiac arrest 	3
2	Prehospital Trauma Care	<ul style="list-style-type: none"> - Damage control resuscitation in the field - Prehospital blood product administration - Advanced hemostatic agents - Tactical combat casualty care principles 	3
3	Point-of-Care Diagnostics	<ul style="list-style-type: none"> - Portable ultrasound devices - Rapid biomarker testing in prehospital settings - Capnography and advanced monitoring - Telemedicine in prehospital diagnostics 	3
4	Emergency Airway Management	<ul style="list-style-type: none"> - Video laryngoscopy and optical devices - Supraglottic airway innovations - Prehospital RSI protocols - Difficult airway algorithms for EMS 	3
5	Disaster Medicine and Mass Casualty Incidents	<ul style="list-style-type: none"> - Triage systems and decision support tools - Mobile field hospitals - CBRNE preparedness and response - Psychological first aid in disasters 	3
6	Emergency Medical Services Systems	<ul style="list-style-type: none"> - Community paramedicine models - Drone technology in EMS - Artificial intelligence in dispatch systems - Performance metrics and quality improvement 	3
7	Prehospital Pharmacology	<ul style="list-style-type: none"> - Novel analgesic approaches - Prehospital thrombolysis and anticoagulation reversal - Ketamine use in prehospital settings - Pharmacological management of agitated patients 	3
8	Emergency Pediatric Care	<ul style="list-style-type: none"> - Pediatric assessment tools - Pain management in pediatric emergencies - Pediatric trauma care advancements - Management of pediatric behavioral emergencies 	3

Sr. No.	Topic	Details	Hours
9	Toxicology and Environmental Emergencies	<ul style="list-style-type: none"> - Antidote delivery systems - Management of novel psychoactive substances - Targeted temperature management - Envenomation treatments 	3
10	Emergency Cardiovascular Care	<ul style="list-style-type: none"> - Prehospital ECG interpretation aids - STEMI systems of care - Management of acute aortic syndromes - Prehospital ultrasound in cardiac emergencies 	3
11	Neurological Emergencies	<ul style="list-style-type: none"> - Prehospital stroke scales and assessment tools - Mobile stroke units - Management of status epilepticus in the field - Traumatic brain injury care advancements 	3
12	Emerging Technologies in EMS	<ul style="list-style-type: none"> - Wearable biosensors for patient monitoring - Virtual and augmented reality in EMS training - 5G technology in emergency communications - Robotics in emergency response 	3

Total Hours: 36