

NANJU NOOLUM MARUTHUVA NEETHI NOOLUM

6-DAY CME MODULE FOR TEACHERS

S.No	TOPIC	COURSE CONTENTS	DURATION
1	General toxicology (introduction)	Definition-poison-classification-corrosives-irritants-vegetable irritants-inorganic irritants-neuro toxic-cardio toxic-asphyxiates-nephrotoxic-hepato toxic- miscellaneous-toxidrome	1 ½ hrs
2	General toxicology (classification)	forensic toxicology-analytical toxicology-manner of poisoning-factors influence the action of poison-toxic factors- physical state-chemical form-quantity-route of entry-concentration-mechanism of action-local effect-systemic effect-combined effect-selective toxicity-combination-additive effect-synergistic effect-potential-antagonism-cumulativeness-host factors-age-health-disease-intoxication-sleep-exercise-condition of the stomach-anaphylaxis-idiosyncrasy-tolerance-clinical toxicology-management of poisoning cases-diagnosis-management-antidotes-legal duties	1 ½ hrs
3	Introduction to toxicology (Siddha aspect)	Nanju maruthuvam in Siddha-nanju maruthuva varalaru-nanju vagaigal-thathu Nanju-thavara Nanju-vilangu Nanju-nanju maruthuva noolgal-nanju murivu-aga Nanju-pura Nanju-thael kadi-eli kadi-vandu kadi-paei naai nari kadiku maruthuvam-naai kadi-father of modern toxicology-terminology in toxicology-toxicology-poison-drug-toxinology-antidote-who are toxicologists-classification according to duration-classification according to motive-route of administration-sources of poison	1 ½ hrs
4	Introduction to toxicology (modern aspect)	classification of poison-corrosives-agricultural irritants-inorganic irritants-organic irritants-systemic poisons-nervous system-cardiovascular system-asphyxiants-toxic rating-factors influencing the action of poison in the body-quantity-physical form-chemical form-concentration and dilution-route of administration-condition of the stomach-age-state of body health-intoxication and poisoning states-sleep-exercise-cumulative actions of poison-tolerance-idiosyncrasy-diagnosis of poisoning in living and dead-	1 ½ hrs

		management of poisoning-basic-specific-universal antidote-statistical about poisoning in india-percentage of poisoning in india-journals in toxicology-guidelinesfor toxicity studies	
5	Standardization methods for metal/mineral drugs	Drugs of metal/mineral origin-testing parameters for single drug-nature-colour-streak-tenacity-transperancy-luster-hardness-fracture-cleavage or parting-magnetism-specific gravity-optical property-refractive index-chemical properties-qualitative chemical test-charcoal test-physio chemical analysis-near infra red spectroscopy-parpam comparison-clustering of parpam-principal component analysis-electron spectroscopy for chemical analysis-xray photo electron spectroscopy-xray fluroscence-comparison of muthu parpam and muthuchippi parpam-trace elements-xray diffraction- analysis of muthu parpam and muthu chippi parpam-icp ms-instrumentation-advantages-icp ms of muthu parpam and muthu chippi parpam-schematic representation of process from sample introduction to mass analysis-AAS	1 ½ hrs
6	Standardisation of herbal drugs	Herbs & herbal medicine-standardization why?-basics requirements to enter Siddha drug into global market-need for standardization-single drug used in ASU-Drug of animal origin-drugs of mineral origin-drugs of plant origin-Categories of Herbal Medicines in Siddha-Testing Parameters for Single Drug & Compound Formulation-Single Drugs-botanical identification-physicochemical-TLC-HPTLC-microbial load- pesticide residues- aflotoxin-Test for formulation- Ajamoda- Macromorphology- Microscopy of Ajamoda- Vittae- Trichomes- Epidermis with stomata-adulterants in substitutes- Comparative study of genuine and market sample of Piper chaba- Dried stem of genuine and market sample- Morphology – <i>P.chaba</i> - Detailed TS of the stem of Genuine and market chavya - Adulterants and Substitutes- Determination of Foreign matters-Moisture Content- Determination of Total Ash- Soluble Extractives- Ether Soluble Extractives/Fixed oil content- Disintegration time- uniformity of weight- tablet/capsule- friability-	1 ½ hrs

		hardness- Specific gravity- Alcohol content- test for methanol- Determination of volatile oil content- Refractive index- Ph value- Saponification value- Acid value- Iodine value- Peroxide value- Rancidity test- Holde's test- Estimation of sugar content- Chromatography technique- TLC methodology- HPTLC fingerprint- Microbial load- Limits of heavy metals- Pharmacological activity	
7	Chemical carcinogenesis (general)	Comparison between benign and malignant tumour- differentiation and anaplasia- metastasis- partwise of spread- seeding of body cavities and surfaces- lymphatic spread- haematogenous spread- Carcinogen- steps involved in carcinogenesis- initiation- promotion- pathogenesis- major chemical carcinogens- natural plants and microbial products- molecular targets of chemical carcinogens- carcinogenic agents or group of agents and human cancer sites	1 ½ hrs
8	Chemical carcinogenesis (systemic)	Lung carcinoma- morphology- squamous cell carcinoma- small cell carcinoma- malignant mesothelioma- carcinoma of oral cavity and oropharynx- carcinoma of oesophagus- hepatocellular carcinoma- colangiocarcinoma- intrahepatic CCA- carcinoma of pancreas- renal cell carcinoma- carcinoma of bladder- high grade papillary urothelial cancer- skin malignancy- basal cell carcinoma- malignant melanoma- hematopoietic malignancy- acute myeloid leukemia- chronic lymphocytic leukemia- chronic myeloid leukemia- hodgkins lymphoma- non hodgkins lymphoma	1 ½ hrs
9	Basics of pharmacokinetics (definition)	Pharmacokinetics- definition- uses of PK studies- Absorption- factors affecting drug absorption by oral dose- distribution- plasma protein binding- blood brain barrier- placental barrier- redistribution-metabolism- non synthetic reaction- synthetic reaction- excretion	1 ½ hrs
10	Basics of pharmacokinetics (application)	enterohepatic circulation- pharmacokinetic calculation- AUC- bio availability- volume of distribution- clearance- mathematical approaches- compartmental model- non compartmental model- steady state- calculation of dose rate- trends in pharmacokinetics- bio enhancers- issues in Siddha medicine	1 ½ hrs
11	Distribution and identification of	Introduction- general biology- types of snakes- spectacled cobra- common krait- russels- viper- saw scaled viper- Indian	1 ½ hrs

	Indian snakes	rock python- Indian rat snake- common wolf snake- common trinket snake- common sand boa- red sand boa- checkered keel back- striped keel back- green keel back- common vine snake- common bronze back tree snake- hump nose pit viper- geographical distribution- status of snakes- role of snakes- false beliefs- threats	
12	Snake bite and treatment	-snake bite- characteristics of snake venom- symptoms of cobra and krait bite, russels, viper and saw scaled viper- first aid- treatment- self protection- conservation	1 ½ hrs
13	Standardization of Siddha drugs by analytical methods	Herbal drugs- multiherbal formulation- standardization- quality evaluation- quality control- stability of formulation- essential components- protocols	1 ½ hrs
14	Standardization of Siddha drugs by analytical methods (demo)	marker components- marker major transformations- marker compound new classification- impurity markers- marker generation- quantification- conclusion	1 ½ hrs
15	General consideration in toxicology	Introduction-definition-toxicology-toxin-poison-drug- adverse reaction-side effect-branches of toxicology	1 ½ hrs
16	Treatment aspect in toxicology	Treatment of poisoning- organo phosphorous-nerium poisoning-strychnos poisoning-cardiac poisoning-corrosive- alcohol-food poisoning	1 ½ hrs
17	Orientation in pharmacognosy of Siddha drugs (introduction)	Introduction-definition of pharmacognosy- Standardisation of herbal drugs- need for-pharmacognosy study in Siddha drugs	1 ½ hrs
18	Orientation in pharmacognosy of Siddha drugs (discussion)	Testing Parameters for Single Drug & Compound Formulation-Single Drugs-botanical identification- physicochemical-TLC-HPTLC-microbial load- pesticide residues- aflotoxin-Test for formulation	1 ½ hrs
19	Animal models in cardio vascular	Animal models for human disease- bio medical research- exploratory model- predictive model- cardio vascular agent- anima lmodels in CVS disorder- langendorff heart- heart	1 ½ hrs

	research	failure model- hypertension models- atherosclerosis- diuretics- arrhythmias- pilot experiment- factors influencing animal model selection- factors related to animal- scaling of dose- requirements inCVS DD lab	
20	Animal models in geno toxicity	A typical safety evaluation programme- genetic toxicology- regulatory of genetic toxicology- AMES test- in vitro mouse lymphoma TK assay- chromosome aberration test- in vivo cytogenetic assay- in vivo micro nucleus assay- assessing a positive genetic toxicology finding during clinical development	1 ½ hrs
21	Toxicological screening (OECD)	Toxicity-History of toxicity studies-regulatory requirements- systemic toxicity studies-acute,sub acute,sub chronic & chronic toxicity studies-OECD guidelines	1 ½ hrs
22	Toxicological screening (WHO)	Adapting toxicity protocols to Siddha products-rationale for toxicological testing of drugs-guidelines for toxicity investigation of herbal medicines-acute toxicity study-long term toxicity study-WHO guidelines	1 ½ hrs
23	Statistical considerations in animal studies (Introduction)	Introduction-need to control variation-randomization- blinding-source of variation-choice of variables-characters- traits-outcomes Analysis of acute toxicity study-	1 ½ hrs
24	Statistical considerations in animal studies (application)	Statistical variation-hypothesis testing-level of significance- power-two sided test-one sided test-probability-t-test- ANOVA-Dunnett's test-factorial experiment	1 ½ hrs
25	Pre and post training assessment	Assessment and feedback forms collected at the end of the programme from the participants with sealed envelopes.	1 hour
Total			37

Total sessions – 24 (Twenty Four)

Total Duration – 6 (Six) days