Tender 06/2018

Treatment Planning System-TPS

No.	Item Specification	Fill Your Specifications
1	**Description of Function:**	
1.1	**Specifications for 3D Treatment Planning System**	
1.2	Latest 3D Treatment Planning System (TPS) for Radiotherapy planning with treatment planning accessories.	
2	**Description of the System**	
2.1	3D Treatment Planning System capable of radiotherapy treatment planning for teletherapy (Photon & Electron beam) and brachytherapy.	
2.2	This system should have capability of integration with Simulators, CT scanner/ MRI & Linear Accelerators of any vendor.	
2.3	The TPS should be capable of 3D treatment planning with independent work station for virtual simulation.	
2.4	The TPS should have latest state of art hardware & software with following features as described in Technical specifications	
3	**Technical Specifications**	
3.1	**Software**	
3.1.1	Patient registration, record and file management should be user friendly.	
3.1.2	Patient Data Acquisition through film scanners, digitizer, DICOM 3.0 import facility from CT Scanners/ MRI & Simulator of any vendor.	
3.1.3	Advanced Contouring tools with patient identity information should be available. Auto segmentation/contouring based on electron density values for different organs should be included & follow ICRU-50 Volume definitions.	
3.1.4	System should also be capable of showing the combined dose distribution to the target volume resulting from whole treatment received by teletherapy (photon, electron, photon + electron) and brachytherapy.	
3.1.5	System must have facility of treatment planning for Photon & Electron beam of all energies in the therapeutic range.	
3.1.6	The system must be capable of calculating mixed beam treatment with photon and electron radiation.	
3.1.7	System must have facility of machine data acquisition through RFA/scanner, etc.	
3.1.8	The system must support regular & irregular fields for all types of beam modifiers such as Bolus, Blocks, MLCs, tissue compensator, wedges, dynamic wedge, asymmetric beams, etc.	
3.1.9	System must be capable of conformal radiotherapy planning and multiple isocentre calculations.	
3.1.10	System should be capable of making tissue inhomogeneity correction (as per electron density), irregular point dose calculations and auto-contouring as per CT data. Accuracy of dose calculations must be as per TG-23 Bench Mark Tests.	
3.1.11	Facility of Brachytherapy Planning for manual and remote afterloading systems using different types of radiation sources in clinical practice.	
3.1.12	Source strength for all types of sources in terms of air KERMA rate, apparent activity, exposure rate for all the radioactive sources used in radiaotherapy.	
3.1.13	Capable of calculating tissue attenuation and source sheathing.	
3.1.14	Provision of assigning source strength and treatment time to each individual radioisotope. Auto decay correction in output.	
3.1.15	Provision to position, delete source, dose points and applicator points with keyboard and mouse.	
3.1.16	Facility of advanced comprehensive plan and display tools, drawing and margining tools, multiplan comparison and summation.	
3.1.17	Provision of 3-D display of entire anatomical volume with sources, dose points, different body organs, isodose distribution with different color coding.	
3.1.18	Display of dose to any defined point or volume. Isodose display in percentage as well as in cGy	
3.1.19	System should be able to store all unit and source data separately.	
3.1.20	Facility of creating user's defined templates for various situations.	
3.1.21	It should have capability of Virtual Simulation feature and multi-planar reconstruction in sagittal, coronal and oblique planes from CT data set.	
3.1.22	TPS should show DVH, Beam's Eye View at any depth, shielding area, etc.	
3.1.23	It should have capability of importing image from CT, MRI, Gamma camera via networking (DICOM compatible)	
3.1.24	Specify the algorithm (pencil beam/collapsed cone convolution/Monte Carlo) used for calculations in the TPS.	
3.1.25	System should have image registration and fusion facility for the images acquired from different imaging modalities.	
3.1.26	System should have separate password for physics area, clinical area and system administrator.	
3.1.27	Optional Software (Price must be quoted separately)	
3.1.28	IMRT planning	
3.1.29	SRS and SRT Treatment planning	
3.1.30	Radiobiological Plan Evaluation for teletherapy, brachytherapy, combined	
3.2	**Hardware**	
3.2.1	Latest high end PC available at the time of supply with DVD Writer of latest technology, Hard Disk, USB Pen Drive, external hard disk, A3 size Flat Bed Color Film Scanner for CT / MRI and X-Ray Radiographs, 19"/21" LCD Color Display Unit, Laser Printer A4 size and Color Inkjet Printer of A3 size. The model, dpi and the make of scanner should be mentioned.	
3.2.2	Separate one contouring station connected with TPS and the CT/MRI available in the hospital.	
3.2.3	Reputed brand (Godrej, Methodex, Blowplast) supporting furniture, air conditioner for TPS room, storage, for hardware must be supplied with the system.	
3.2.4	Complete installation of the system and interior of the TPS room to the user's satisfaction.	
4	**User manuals and certificates**	
4.1	User/Technical/Maintenance manuals to be supplied in English.	
4.2	Operators, physics, configuration and utility programme manuals.	
4.3	Certificate of calibration and inspection.	
4.4	License for Operating system and software must be supplied along with the system to the Hospital.	
4.5	List of important spare parts and accessories with their part number and costing	
4.6	Log book with instructions for daily, weekly, monthly and quarterly maintenance checklist. The job description of the hospital technician and company service engineer should be clearly spelt out.	
4.7	Compliance Report to be submitted in a tabulated and point wise manner clearly mentioning the page/para number of original catalogue/data sheet. Any point, if not substantiated with authenticated catalogue/manual, will not be considered.	
5	**Environmental factors**	
5.1	The unit shall be capable of being stored continuously in ambient temperature of 0-50 0 C and relative humidity of 15-90%	
5.2	The unit shall be capable of operating continuously in ambient temperature of 10 – 400 C and relative humidity of 15-90%.	
6	**Power Supply**	
6.1	Power input to be 220-240VAC, 50Hz	
6.2	Reputed brand online UPS (APC , Tata Liebert) of suitable rating with voltage regulation and spike protection for 30 minutes back up for the system and room.	
7	**Quality Certificate & training**	
7.1	Should be FDA , CE, UL or BIS approved product	
7.2	Manufacturer should be ISO certified for quality standards.	

7.3	TPS should support all the recommendations made by AAPM, ESTRO, ICRU, etc.	
7.4	Comprehensive training for designated professional staff and support services till familiarity with the system.	
8	**Accessories (Price must be quoted separately)**	
8.1	Reputed brand in-vivo treatment plan verification setup TLD reader with Lif TLDs (mention make and model).	
8.2	Reputed brand wireless MOSFET in-vivo dose verification system (mention make and model).	
8.3	Reputed brand Carbon fiber tilting base plate with set of head rests and prone head holder for brain tumor planning compatible with the existing immobilization devices used in the department (mention make and model).	
8.4	Reputed brand standard imaging overlay (Flat CT carbon fibre Table top, mention make and model)	