All India Institute of Medical Sciences, Kalyani

PROPOSAL

MASTER OF DENTAL SURGERY (M.D.S.) ACADEMIC RESIDENCY COURSE IN
Conservative Dentistry And Endodontics AT
A.I.I.M.S. Kalyani

3 Seats For MDS in Conservative Dentistry And Endodontics
3 Seats For Oral and Maxillofacial Surgery
3 Seats for Orthodontics

This version dated: 30th[h] January 2022
Prepared by: Dr. Ajay Chhabra

Proposal for starting of Postgraduate Program atDepartmentof

Dentistry, AIIMS,Kalyani

DepartmentofDentistryproposestostartMastersofDental Surgery (MDS) program in the speciality of Conservative Dentistry &Endodontics.

Description:

The Department of Dentistry deals with patients presenting with complaints of oral,dental and maxillofacial region. The Department is developing as a state of the artdental unit equipped with all modern gadgetry and high end equipment to deal withregular and complex pathologies. The department has numerous ongoing intramuraland collaborative research projects currently. The department also has an extramuralprojectin collaboration withICMR.

A hallmark for the department is the visionary 'Computerized Patient ManagementSystem (CPMS)' for documentation of patient records which is vital in the long termevaluationof procedures.

I. ManpowerResources

(a) Faculty:

No.	Designation	NameofFaculty	SanctionedPost	VacantPost	Reqired
1	Professor&Head	Dr.Ajay Chhabra Conservative Dentistry &Endodontics	1	0	0
2	Additional professor	Oral & Maxillofacial Surgeon	0	0	1
3	AssociateProfessor	DrMukeshkumar Orthodontics	1	0	0
4	AssistantProfessor	1. Dr.Debraj Howlader Oral & Maxillofacial Surgeon 2. Dr.Alice Queen Prosthodontist	2	0	0
5	AssistantProfessor	1. Conservative Dentistry &Endodontics 2. Orthodontics	0	0	2
6	Senior Resident	1. Pedodontics 2. Conservative Dentistry &Endodontics 3. Orthodontics 4. Oral & Maxillofacial Surgeon	0	0	4

II. InfrastructureofDepartment

(a) Out Patient Department (OPD): Well-equipped and well-laid out OPD complexwith adequate consultation rooms and waiting areas for patients. A wide variety of cases are seen on a day-to day basis andfollow up is available. An online access to lab-reports and radiological investigationsattempts to make the turn-around time per patient shorter. Besides the regular dentalprocedures like restorations, oral prophylaxis and extractions, the department dealswith endodontic procedures both regular and advanced; minor surgeries like regularandcomplicatedextractions,removalofimpactedteeth,preprostheticsurgeries,biopsyanddentalimplants.Implantsupportedfullmouthrehabilitationisalsoundertakenregularly.

Currently the Department sees flow of a large number of patients requiring restorationand advanced tooth rehabilitation ona regular basis. Also a widevarietyofendo-periolesionareseenandtreatedasperttheprevalenttreatmentprotocols.

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(b) InPatients:Thedepartmenthasadequatenumberofbedsatpresentforadmissionand treatmentofpatients.Emergencybeds havealso been allotted.

(c) OT: Functional and well equipped operation theatres have been established in theInstituteforconductingmajorprocedures underanaesthesia.

Currently the department has 3 OT days per week and a wide variety of cases that areoperatedregularly includesmaxillofacial trauma, precancerous lesionslike OSMF,red and white lesions, benign cysts and tumors requiring enucleation or resections,Sinus pathologies, TMJ pathologies like ankylosis and Internal derangement. Thedepartment is also doing neck dissection surgeries and free fibular reconstruction incollaborationwithdepartmentofoncosurgeryandplasticsurgery.Orthognathicprocedures for the patients who are in presurgical orthodontic phase, are also taken upasperthe requirement.

MOT: Inaddition afullyequipped MinorOTis inactiveuseintheOPDBlock.

ICU: We have ICU facility under Department of Anaesthesia to look after our majorsurgicaland other serious patients.

Teaching room: for small group teaching and case discussions, a teaching room hasalsobeenestablished with Audio-visual facilities.

(d) Instrumentation:

OPD

1. **DentalChairs:**Ten**(8)** state of the art fully automatic electrically operateddental chairs with all attachments including fibreoptic light source, inbuilt surgicalmotors,airotor,wetline suction,scalers&lightcuringmachinesareinactiveuse.

   Five(5)Highendchairsarein tenderprocess.

2. **IOPAXray unit – 01Wall Mount , 2 portable**
3. **Radiovisuography(RVG)-2**
4. **OPGandLateral cephalogrammachine–1**
5. **Endomotor-02**
6. **Electrocautery-01**
7. **StraightSurgicalHandpiece -10**
8. **UltrasonicScalerwithHandPiece -08**
9. **ApexLocator–02**
10. **Lightcuring Unit-08**
11. **LabMicromotor–02**

12. AirotorHand Pieces–10

13. StraightSurgicalHandPieces-10

14. ContraAngleHandPieces –06

15. RotaryHand Pieces – 02

16. FullScaleofDentalandOralSurgeryInstrumets

17. SolderingTorch–02

18. X-RayViewer-03

19. PortableX-RayUnit-02

20. OrthodonticPlierSets-18

    ImplantKits–01

21. OrthodonticImpressionTrays –

22. HighDefinitiondigitalSLRcamera-01

23. Photographicroomwithbacklit LEDlightpanel

24. ImplantSurgicalMotor –02

25. ImplantKits-06

26. Ultrasoniccleaner–02

27. PiezoSurgeryUnit–01

28. AirotorCleaning System– 01

29. Autoclave–03

30. SuctionMachines –02

<u>EndodonticFileSystem</u>

1. RotayHyflexFile
2. RotaryPathFinderFile
3. RotaryRetreatmentFile
4. RotarySingleFile
5. HandProtaper File
6. K-Files
7. H-Files

Consumablesrequiredforallspecialitiesandregularpracticesofdentistryareavailable through rate contract. For Endodontic treatment, adequate number of allconsumables;barbedbroaches,GGDrills,RootCanalpreparationfilesystems,Lentulospiralfillers,Spreaders,GuttaPurchaPoints(2%)andcorrespondingPortaperGPPointes,MultipleRootCanalSealersareavailablethroughrate contract.

Thespecializedequipmentandconsumableintheprocessof localpurchaseare:-

S.No.	EquipmentName	Quantity
1	EndovacIrrigationSystem	01
2	Apex Locators	04
3	Loopswithlightandheadbands	02
4	EndoactivatorSystems	04
5	PulpTesters	04
6	MiniHeadHandpieces	04
7	MTAfillinginstruments	04
8	MAPSystems	01
9	RubberDamKits	04
10	GuttaPurchaCutters	05
11	CompositePlacement Instrument Sets	04

IntheOperation Theatrethespecializedequipmentsfor local purchaseare:-

a. Microdrill&OscillatingSaw –1
b. Harmonics–1
c. EndoscopicsystemwithFullHDEndocamerawithrecording– AvailableinOTforcommonuseanddepartment'spersonalisintenderproce ss
d. Monopolar&Bipolar Cauterysystem– 1
e. All instruments for basic maxillofacial surgeries, maxillofacial trauma,orthognathicsurgeries, bonegrafting.

III. Instruments/EquipmentavailableatcentralresearchfacilityandDataResour ces

1) Stateof theart CT andMRIfacility
2) ComputerswithPrinters/Scannersandhighspeed internetconnection
3) Physicallibrary&e-Librarywithsubscription&accesstomanyjournals&databases
4) FacilityforVideo conferencingand Virtualclasses
5) Rt PCR
6) GradientPCR
7) Agarosegelelectrophoresissystem
8) LaminarflowwithHEPAfilter
9) Laminarflowforcellculture

10) LaminarflowforPCR
11) Refrigeratedmicrocentrifuge
12) Liquidnitrogenwithdispenser
13) Analyticalbalancehighend
14) Waterpurificationsystem

PROPOSEDNUMBER OFMDSSEATS

02(Two)per year in ConservativeDentistryandEndodontics.

MODEOFSELECTIONOFCANDIDATETOTHECURRICULUM

Asper Institute'spolicy

GOALS AND OBJECTIVES OF THE

CURICULUMGOALS._

Thegoalsofthepost-graduatetraininginvariousspecialitiesistotrainthegraduatein DentalSurgerywhowill,

(i) practice respective speciality efficiently and effectively, backed by scientificknowledgeandskill;

(ii) Exerciseempathyandacaringattitudeandmaintainhighethicalstandards;

(iii) Continue to evince keen interest in professional education in the specialityandalliedspecialities whether in teachingorpractice;

(iv) Willing to share the knowledge and skills with any learner, junior or acolleague;

(v) To develop the faculty for critical analysis and evaluation of various conceptsandviews andtoadoptthemostrationalapproach.

OBJECTIVES._

The objective of the post-graduate training is to train a student so as to ensurehighercompetenceinbothgeneralandspecialareaofinterestandpreparehim or her for a career in teaching, research and specialty practice. A student mustachieve a high degree of clinical proficiency in the subject and developcompetence in research and its methodology in the concerned field. Theobjectives to be achieved by the candidate on completion of the course may beclassifiedasunder:–

(a) Knowledge(Cognitivedomain)

(b) Skills(Psychomotordomain)

(c) Humanvalues,ethicalpracticeandcommunicationabilities

(a) KNOWLEDGE._

(i) Demonstrateunderstandingofbasicsciencesrelevanttospeciality;

(ii) Describe etiology, pathophysiology, principles of diagnosis and managementofcommonproblemswithin thespecialityinadultsandchildren;

(iii) Identify social, economic, environmental and emotional determinants in agivencase andtake theminto accountforplannedtreatment;

(iv) Recognize conditions that may be outside the area of speciality orcompetenceandtoreferthemtotheconcernedspecialist;

(v) Update knowledge by self-study and by attending courses, conferences andseminarspertainingtospecialty;

(vi) Undertake audit, use information technology and carry out research in bothbasic and clinical with the aim of publishing or presenting the work at variousscientificgathering;

(b) SKILLS:

(i) Take a proper clinical history, examine the patient, perform essentialdiagnosticproceduresandorderrelevanttestsandinterpretthemtocome toareasonablediagnosis about thecondition;

(ii) Acquireadequateskillsandcompetenceinperformingvariousproceduresasreq uiredin thespecialty.

(c) HUMANVALUES,ETHICALPRACTICEANDCOMMUNICATIONABILITIES.

(i) adoptethicalprinciplesinallaspectsofpractice;

(ii) Fosterprofessionalhonestyandintegrity;

(iii) Deliver patient care irrespective of social status, caste, creed, or religion ofthepatient;

(iv) Develop communication skills, to explain various options available andobtaina true informedconsentfromthepatient;

(v) Provideleadershipandgetthebestoutofhisteaminacongenialworkingatmos phere;

(vi) Apply high moral and ethical standards while carrying out human or animalresearch;

(vii) Behumbleandacceptthelimitationsinhisknowledgeandskillandtoaskforhel p fromcolleagues when needed;

(viii) Respectpatient'srightsandprivilegesincludingpatient'srighttoinfo rmationandrightto seekasecondopinion.

PROPOSEDCOURSECONTANTATAIIMSKALYANI

ConservativedentistryandEndodontics:

It will be a course of minimum 3 years duration, at the end of which the studentwould acquire the following knowledge and skills in the specialty of ConservativeDentistryandEndodontics.

ConservativeDentistry

1. Historyandrationale ofconservativeprocedures.
2. Occlusion
3. Pathologicandnon-pathologiclesionsofthehardtissueoftheteeth, advancedknowledgeofetiology,
diagnosis,treatmentand prevention.
4. Moderndevelopmentandadvancedknowledgeofrestorativematerials,procedures,cutti ngtools,
drugs andchemicalsusedinconservativedentistry.
5. Alltypeofrestorationsused in conservativedentistry
6. Modernbiologicaland mechanicaldentistry
7. Moisturecontrol andsoft tissuemanagement
8. Cariology – Epidemiology, etiology, microbiology, histopathology, prevention androleof Fluorides.
9. Conservative dentistry in relation to other branches of dentistry includingPeriodontics,Oral Surgery,
Pedodontics,Preventive and CommunityDentistryandGeriatricDentistry
10. InfectioncontrolinConservativeDentistry
11. Useofauxillaries
12. AestheticDentistry
13. CeramicDentistry
14. Radiologyas relatedtoConservativeDentistryand Endodontics
15. Managingelderlypatients,requiring restorativeandendodonticservices,speciallymedically,physically andpsychologicallycompromised elderly

Endodontics

1. Historyandrationaleofendodonticprocedures
2. Pulpandperiapicalpathology,advancedknowledgeofetiology,diagnosis,treat mentand management
ofpulpallyinvolved teeth.
3. Bacteriologicalinvestigationsandintracanalmedication
4. Advancedknowledge ofrootcanalinstruments,theirsterilizationanduse.
5. Advancedknowledge ofmaterialsusedinendodontics.

6. Basicandadvancedproceduresforroot canalpreparation
7. Techniquesof rootcanalobturation
8. Endodonticfailuresandre-treatment.
9. Endo-periorelationship
10. Pediatricendodontics
11. Geriatricendodontics
12. Diagnosisandmanagementofendodonticpain.
13. Endodonticemergenciesandflare-ups.
14. Etiologyandtreatmentoffracturedandtraumatized teeth
15. SurgicalEndodonticsandEndosseous Implants
16. RestorationofEndodonticallytreated teeth
17. InfectioncontrolinEndodontics
18. Radiologyas relatedto Endodontics

SyllabusforMDScourseinConservativeDentistryandEndodontics

1. AppliedAnatomyandHistologyandagerelatedchanges

Development of
faceMuscles of
MasticationTemporo-
Mandibular
JointSalivaryglands
TongueParanasal
sinusesHardandp
alate
Trigeminal,facial,glossopharyngeal andhypoglossalnerves

OralHistology

Developmentoftooth
Structure of enamel, dentine, pulp and
periodontiumOralmucous membrane
Occlusion
Sheddinganderuption

2. AppliedGeneralandOralPhysiologyandBiochemistryandagerelated changes

Mastication and
deglutitionSaliva
Dietandnutrition
Pain : pathways and
mechanismBlood: Physiology
and
pathologyCardiovascularhomeost
asis

Respiratorysystem:Normalphysiologyandvariationsin healthanddisease

Endocrinology:Thyroid,parathyroid,adrenals, growthhormone,sex hormoneandpregnancy,
regulationofbloodsugar

GeneralPharmacology

Chemotherapy of bacterial
infectionsLocal and General
AnaestheticsAnalgesics and anti-
inflammatory
drugsHypnotics,Tranquilizersandantipyr
eticsImporanthormonesandtheir actions.
Drugaddictionandtolerance
DrugsactingonautonomicnervoussystemsIm
muno-suppressivedrugs
Hypetensive and hypotensive
drugsEmergency drugs in dental
practiceSpecialaspectsofGeriatricpharmac
ology

3. Appliedgeneralandoralpathologyandmicrobiology

Appliedgeneralpathology
CellularmetabolismandeffectofagingDegenerat
ionand necrosis
Vascularchanges
Blooddyscrasias,bleedingdiathesisN
eoplasia
Immunology-itsfundamentalprinciples

Appliedoralpathology

Developmentaldisturbancesoforalanddentalstructures
Oral tumors and tumor like conditions, red and white lesions, oral manifestations ofnutritionaland
metabolicdiseases
DiseasesofbloodandbloodformingorgansCyst–
clinicopathological aspect
Diseasesofsalivaryglandandeffectof aging

Microbiology

OralFlora
Staphylococci,Streptococci,Lactobacilli,ActinomycesV
iruses– Herpes, AIDS,Hepatitis
Fungi-

CandidaDefense
MechanismsVaccine

Bio-statistics

1. Introduction
2. Collection,classificationandpresentation
3. Averages(Mean,Median,Mode)
4. Dispersion,skewnessandkurtosis
5. Correlation
6. Regression
7. Binomial,poisonandNormalDistribution
8. Testsofsignificance(largesamples)
9. X2,t and p test
10. Clinicaltrials

Principlesofresearchmethodology

TypesofResearch:

a. Basicorfundamental
b. Applied
c. Clinical
d. Experimental

QualificationinResearch Methodolgy

e. Opentrials– Biasand safeguardsagainstit.
f. Doubleblind,Triple blindstudies
g. Crossover methods

Objectivityin ResearchMethodolgy

h. Instrumentalquantification,rationalesandfallacies
i. Reproducibility
j. Scoringmethods–

Safeguardsagainstsubjectivebias.Records,Protocols and analysis

Specialareasofresearch

a. Clinical
b. Experimental
c. Histological&morphological
d. Histochemical
e. Geneticand
f. Epidemiologicstudies

Basic understandingofcomputer

1. CreationofDatabaseforresearchpurposes
2. To learn making of charts, bar graphs, means, standard deviation, percentiles and pvalues
3. Preparationofslides
4. Writingofarticlesandletters

5. Learn aboute-mail,worldwideweb etc.

Dentalmaterials

1. Physical,mechanical andbiologicalproperties ofmoderndentalmaterials
2. Gypsumproducts
3. ImpressionmaterialsusedinDentistry
4. MetalsandalloysusedinDentistry
5. Silveramalgam
6. DentalWaxes includinginlaycastingwax
7. Investments
8. Castingprocedures
9. Cements
10. Compositeresins
11. Porcelainincludingporcelainfusedtometalalloys.
12. Porcelainfurnace,firingandtechniques
13. Mechanicsoftoothcutting(bursandpoints)
14. Abrasivesandpolishingagents

Teaching

ProgrammeTheory:

There will be weekly seminars, journal club and clinical case discussion, in which theentiredepartmentalfacultyandresidentswillparticipate.Thestudentswillbeencouraged to use latest AV aids available to make presentation of their seminars andefforts will be made to train them in teaching methods to make them good teachers infuture.

Dissertation:

Each candidate will have to work on a dissertation topic of his/ interest, after approvaloftheguide/co-guidesandfinalapprovaloftheDean.Theprotocolforthedissertation will have the be submitted to the Dean's office within six (06) months ofjoining (i.e. by 30th April for January batch students). The research topic can beexperimental,clinicalorepidemiological.Theworkcanbeinter-disciplinaryinnature, including multiple departmentsof the institutionsor outside institutions,andin consultation with the department of Biostatics to select sample size and statisticaltests applicable etc. the research work will have to be completed and submitted sixmonths before appearing in the final exams. The research finding has to be compiledin the form of a final report of not less than 50 typed pages (A-4 size with doublespacing) excluding acknowledgement, table of contents and reference. Two copies ofthe dissertation will have to be submitted to the Academic Sections through the Chiefofthe Centre, after certification fromguides andco guides.

LibraryDissertation:

Each candidate will have to submit a library dissertation within 18 months of joiningtheprogram on a topicassigned to him/her bytheguide.

Practical: Laboratory Exercises- To be completed within four (04) months ofjoiningthe program.

ExerciseI:Techniques onextractedteeth.

a)Toothcarving

ExerciseII:

a)Sectioncutting

ExerciseIII:

Techniquesonextractedteeth

a)Class- Icompositerestorations

d)Fullcrownandjacketcrownpreparationonanteriorandposteriorteeth

c) Postandcorerestorationin anteriorand posteriorteeth

d) Preparationofanteriorteethtoreceivelaminateveneers.

e) Performingrootcanal proceduresonextractedteeth(anteriorandposterior)

f) Preparationofpostspace.

ExerciseIV:OnTyphodont Models

a) Cavitypreparation(CII,II,MOD)foramalgamandinlays/onlays

b) Preparationoflaminates onupper anteriorteeth.

c) Preparationoffullcrownsonanterior andposteriorteeth

d) Theteeth should be mountedon studymodels.

ClinicalWork:

The student will undertake clinical work from the first year itself and will be requiredto complete the following clinical assignments during his/her 3 years training.Thestudent is required to get the workchecked by the department faculty at every stepand maintain the record of the work done, with the signature of the facultycertifyingthe work. All Endodontic cases should be done under rubber dam isolation and usingmagnificationloupes.Strictasepsis shouldbeobservedduringclinicalprocedures.

The student should maintain proper patient record along with x-rays and clinicalphotographs(wherever applicable).

ClinicalAssignmentsNo. ofCases

ClassIcompositefilling 25

Class IIwithCompositeresin	25
Class IIIcomposite/Glassionomerfillings	25
DirectCompositerestorations	25
Castgold inlay/onlay	25
Porcelaininlay/onlay	10
ClassVrestorations withaestheticRestorativematerials	35
ARTrestorations	25
Fissuresealing	10
Porcelainveneers	5
MFPcrowns–Anteriorteeth	20
Fullcrowns–Posteriorteeth	50
Endodontics	
a.RCtreatmentinAnteriorteeth	50
b.RC treatmentinBicuspids	50
c.RC treatmentinmolars	75
d.Postandcorerestorationsinanteriorteeth	
(i)Castpostandcore	10
(ii)Prefabricatedpostandcompositecore	10
e.Postandcore restorationsinposteriorteeth	10
f.Bleaching	
(i)Non-vitalteeth	5
(ii)Vitalbleaching	5
(withfabricationofcustomtrays)	
g.EndodonticSurgeries	10
(Apicoectomy,retrogradefillings,hemisection,etc.)	
Managementoftraumatizedteeth	
(Sub-luxation,avulsion,rootfractures)	10
Managementofpulpo-periodontallyinvolved teeth	10

Important

The students should be encouraged to attend seminars and present paper in the subjectat various local and national association conferences. The student must be encouragedto undertake original studies inthe use of various materials, which he handles andthen present the findings at the conference or publish them in a national journal. Thestudent should be encouraged to teach undergraduate and their junior post-graduatestudentsunderthesupervisoroftheirguide/departmentfaculty members.He/sheshouldalsobeaskedtopreparepatienteducationchartsandmaterialsforthe Department

ModeofExamination:

ASPERINSTITUTE'SPOLICY

*TheCandidateshallundergo periodicinternalassessment.

*Candidate will be admitted to the examination on producing a certificate of havingcompleted six terms (03 Years) in the branch for which registeredto the satisfactionof the post graduate teacher of the subject, Head of the Department and Chief of theCentre.

At the time of filling up the Final examination form at the end of 5th term, everycandidatewillberequiredtoproduceacertificateofhavingcompletedthedissertation prepared under the direction and guidance of the post graduate teacheralong with four typewritten and bound copies of dissertation. The dissertation will bereferred to the examiners and acceptance of it by the examiners will be a preconditionto the admission of the candidate for the final examination. It may form the basis ofthevivavoceexamination and duecredit maybegiven forthesame.

FinalExamination:TheoryExams

Therewillbefourpapersofthreehours durationeach.

Paper I- Basic Dental Sciences, Dental Materials and CariologyPaper II– ConservativeDentistry

PaperIII– EndodonticsPaper IV– AnEssay

Practical:

1st day – Morning session: In clinical situation in a root canal treated anterior tooth,preparationofpostspace,placementofprefabricatedpostwithcorebuildup,reduction forjacketcrownandmakingofimpressionswithsuitableimpressionmaterial.

Afternoon session: Indirect restoration. Class-II gold inlay in a posterior tooth.Cavitypreparation,direct impressionmaking, investingandcastingofpattern.

2ndDay-MorningSession:

1) Endodontic treatment in permanent molar – Rubber dam application, accessopening, negotiating the canals, working length radiograph, cleaning and shaping tillmasterconefitting.

2) Finalfinishing/ polishingand seatingof theinlayinthepatient'smouth.

AfternoonSession:

I. Dissertationpresentation/shortcasepresentationanddiscussion.

II. Viva-voce.

Important:

The student should keep the case histories with X-rays and photographs of at least 50casestreatedbyhim/heratthetimeofexamination,whichshouldincludeporcelain/cast gold inlay/onlay, restoration of fractured incisal angle/edges, porcelainlaminateveneers,bleachingofnon-vitalandvitalteeth.,rootcanaltreatmentinanteriorand posteriorteethand cases of endodontic surgeries.

Thecandidatemustmaintainalogbookofalltheclinicalandacademicworkundertaken.

Department of Dentistry, AIIMS, KalyaniEndodontics

S.No.	BookName	Author	Edition
1	Endodontics	Stock &Walker	3rdEdition
2	EndodonticTherapy	Wiene	5thEdition
3	EndodonticPrincipleand Practice	Torabinezad, Walton	6thEdition
4	Choen'sPathwaysOfDental Pulp	Hargreaves	10thEdition
5	ColorAtlasOfEndodontics	Johenson	1stEdition
6	EndodonticMicrosurgery	Merino	1stEdition
7	Grossman'sEndodontic Practice	B.S.Chandra,V. GopiKrishna	12thEdition
8	Endodontics	IngleandBakland	7thEdition
9	Endodontics	ArnaldoCstellerci	Vol.2
10	DentalPulp	Seltzer&Bender	
11	BleachingTechniquesin RestorativeDentistry	LindaGreenwall	1stEdition
12	Advanced Endodontics-ClinicalRetreatmentand Surgery	JohnS.Rhodes	
13	ProblemsinEndodontics	Michael Hullsmann	
14	DisinfectionorRootCanal System:TheTreatmentofA picalPeriodontitis	NestorCohenca	
15	EndodonticMicrobiology	AsharafF.Fouad	
16	ProblemSolvingin Endodontics	Gutmann	

17	Endodontic IrrigationChemicalDisinfectionofthe RootCanal System	BettinaBasrani	
18	The Dental Pulp Biology,PathologyandRegenerative Therapies	MichelGoldberg	
19	RationalRootCanal TreatmentinPractice	John M. Whitworth	
20	TraumaticInjuries tothe Teeth	J.OAndreasen	4thEdition
21	SurgicalEndodontics	Gutmann	
22	OralandMaxillofacial Infection	Topazian, Goldberg,Hupp	
23	HandBookofLocal Anaesthesia	Malamed	

ConservativeDentistryandDentalMaterial

S.No.	BookName	Author	Edition
1	Pickard'sDentistryof OperativeDentistry	Kid,Smith & Watson	8thEdition
2	AestheticDentistry	Goldstien	2ndEdition
3	OperativeDentistry	Gilmore	4thEdition
4	RestorativeDentistry	Walmsly	1stEdition
5	Sturdevant'sArtandScience ofOperativeDentistry	Sturdevant	5thEdition
6	PreventionandRestoration oftoothStructure	G.J.Mount,W.R Hume	1stEdition
7	Craig'sRestorativeDental Material	Sakguchi,Power	13thEdition
8	RestorativeDentistry	Brenna	1stEdition
9	TextbookofOperative Dentistry	V.Sikri	1stEdition
10	Dental Hard Tissues andBonding	G.Eliades, D.C.Walls, T.Eliades	

11	PhysioandBiochemistryof	G.NielJenkins	
	Mouth		
12	Occlusion	SigurdP.Ramfjord andMajorM.Ash	
13	OperativeDentistry– Modern TheoryandPractice	Marzouk	
14	AdvancedOperative Dentistry	DavidRichetts	
15	Tooth–ColoredRestoratives –PrincipleandTechniques	HarryF. Albers	9thEdition
16	PrincipleofOperative Dentistry	AjeQualtrough	
17	AdvancesinRestoratives Dentistry	AdrianLussi, MarkusSchaffner	
18	AdhesiveTechnologyfor Material –Theory, Practiceand Cases	Maricia, Gladwin,Michael Bagby	4thEdition
19	AnAtlasofGlass-Lonomer Cements –A Clinician'sGuide	GrahamJMount	3rdEdition
20	DentalBleaching	Dr.Martin Kellher	
21	IndirectRestorations	DavidBartlett	
22	Dentalmaterials	S.Mahalaxmi	
23	PhilipsScienceofDental Materials	Philips	12thEdition
24	FundamentalsofAesthetics	ClaudeR. Rufenacht	
25	ChangeYourSmile	RohnaldE. Goldstein	4thEdition
26	PorcelainandComposite Inlays&Onlays-Esthetic	David A.Garber, Goldstein	
27	ScienceandPracticeof Occlusion	CharlesMcneill	
28	OcclusionPrincipleand Treatment	JoseDosSantos	

29	AdvancesinOperative Dentistry	Jean-Francois Roulet	Vol.1
30	ClinicalPhotographyin Dentistry	MatrishvaBVyas	1st Edition

JournalsforConservativeDentistryandEndodontics

S.No	JournalName
1	JournalofEndodontics
2	InternationalEndodonticsJournal
3	OperativeDentistry
4	JournalofAestheticandRestorativeDentistry
5	JournalofProstheticDentistry
6	AustralianEndodonticJournal
7	DCNA
8	JADA
9	JournalofConservativeDentistry
10	Endodontology

All India Institute of Medical Sciences, Kalyani

PROPOSAL

MASTER OF DENTAL SURGERY (M.D.S.) ACADEMIC RESIDENCY COURSE IN
Oral and Maxillofacial Surgery AT
A.I.I.M.S. Kalyani

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This version dated: 30th[h] January 2022
Prepared by: Dr. Ajay Chhabra

Proposal for starting of Postgraduate Program atDepartmentof

Dentistry, AIIMS,Kalyani

Department of Dentistry proposes to start Masters of Dental Surgery (MDS) program in the specialty of Oral & Maxillofacial Surgery.

Description:

The Department of Dentistry deals with patients presenting with complaints of oral,dental and maxillofacial region. The Department is developing as a state of the artdental unit equipped with all modern gadgetry and high end equipment to deal withregular and complex pathologies. The department has numerous ongoing intramuraland collaborative research projects currently. The department also has an extramuralprojectin collaboration withICMR.

A hallmark for the department is the visionary 'Computerized Patient ManagementSystem (CPMS)' for documentation of patient records which is vital in the long termevaluationof procedures.

I. ManpowerResources

(a) Faculty:

No.	Designation	NameofFaculty	SanctionedPost	VacantPost	Reqired
1	Professor&Head	Dr.Ajay Chhabra Conservative Dentistry &Endodontics	1	0	0
2	Additional professor	Oral & Maxillofacial Surgeon	0	0	1
3	AssociateProfessor	DrMukeshkumar Orthodontics	1	0	0
4	AssistantProfessor	1. Dr.Debraj Howlader Oral & Maxillofacial Surgeon 2. Dr.Alice Queen Prosthodontist	2	0	0
5	AssistantProfessor	1. Conservative Dentistry &Endodontics 2. Orthodontics	0	0	2
6	Senior Resident	1. Pedodontics 2. Conservative Dentistry &Endodontics 3. Orthodontics 4. Oral & Maxillofacial Surgeon	0	0	4

II. InfrastructureofDepartment

(a) Out Patient Department (OPD): Well-equipped and well-laid out OPD complexwith adequate consultation rooms and waiting areas for patients. A wide variety of cases are seen on a day-to day basis andfollow up is available. An online access to lab-reports and radiological investigationsattempts to make the turn-around time per patient shorter. Besides the regular dentalprocedures like restorations, oral prophylaxis and extractions, the department dealswith benign and malignant oral lesions; minor surgeries like regularandcomplicatedextractions,trearment of temporomandibular joint pathologies and derangements,removalofimpactedteeth,preprostheticsurgeries,biopsyanddentalimplants.Implantsupportedfullmouthrehabilitationisalsoundertakenregularly.

Currently the Department sees flow of a large number of patients requiring restorationand advanced tooth rehabilitation ona regular basis. Also a widevarietyofendo-periolesionareseenandtreatedasperttheprevalenttreatmentprotocols.

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(b) InPatients:Thedepartmenthasadequatenumberofbedsatpresentforadmissionand treatmentofpatients.Emergencybeds havealso been allotted.

(c) OT: Functional and well equipped operation theatres have been established in theInstituteforconductingmajorprocedures undergeneral anaesthesia.

Currently the department has 3 OT days per week and a wide variety of cases that areoperatedregularly includesmaxillofacial trauma, precancerous lesionslike OSMF,red and white lesions, benign cysts and tumors requiring enucleation or resections,Sinus pathologies, TMJ pathologies like ankylosis and Internal derangement. Thedepartment is also doing neck dissection surgeries and free fibular reconstruction incollaborationwithdepartmentofoncosurgeryandplasticsurgery.Orthognathicprocedures for the patients who are in presurgical orthodontic phase, are also taken upasperthe requirement.

MOT: Inaddition afullyequipped MinorOTis inactiveuseintheOPDBlock.

ICU: We have ICU facility under Department of Anaesthesia to look after our majorsurgicaland other serious patients.

Teaching room: for small group teaching and case discussions, a teaching room hasalsobeenestablished with Audio-visual facilities.

(d) Instrumentation:

OPD

1. **DentalChairs:**Ten**(8)** state of the art fully automatic electrically operateddental chairs with all attachments including fibreoptic light source, inbuilt surgicalmotors,airotor,wetline suction,scalers&lightcuringmachinesareinactiveuse.

   Five(5)Highendchairsarein tenderprocess.

2. **IOPAXray unit – 01Wall Mount , 2 portable**
3. **Radiovisuography(RVG)-2**
4. **OPGandLateral cephalogrammachine–1**
5. **Endomotor-02**
6. **Electrocautery-01**
7. **StraightSurgicalHandpiece -10**
8. **UltrasonicScalerwithHandPiece -08**
9. **ApexLocator–02**
10. **Lightcuring Unit-08**
11. **LabMicromotor–02**

12. AirotorHand Pieces–10

13. StraightSurgicalHandPieces-10

14. ContraAngleHandPieces –06

15. RotaryHand Pieces – 02

16. FullScaleofDentalandOralSurgeryInstrumets

17. SolderingTorch–02

18. X-RayViewer-03

19. PortableX-RayUnit-02

20. OrthodonticPlierSets-18

ImplantKits–01

21. OrthodonticImpressionTrays –

22. HighDefinitiondigitalSLRcamera-01

23. Photographicroomwithbacklit LEDlightpanel

24. ImplantSurgicalMotor –02

25. ImplantKits-06

26. Ultrasoniccleaner–02

27. PiezoSurgeryUnit–01

28. AirotorCleaning System– 01

29. Autoclave–03

30. High volume SuctionMachines –02

Consumablesrequiredforallspecialitiesandregularpracticesofdentistryareavailable through rate contract. For Endodontic treatment, adequate number of allconsumables;barbedbroaches,GGDrills,RootCanalpreparationfilesystems,Lentulospiralfillers,Spreaders,GuttaPurchaPoints(2%)andcorrespondingPortaperGPPointes,MultipleRootCanalSealersareavailablethroughrate contract

IntheOperation Theatrethespecializedequipmentsfor local purchaseare:-

a. Microdrill&OscillatingSaw –1
b. Harmonics–1
c. EndoscopicsystemwithFullHDEndocamerawithrecording– AvailableinOTforcommonuseanddepartment'spersonalisintenderproce ss
d. Monopolar&Bipolar Cauterysystem– 1
e. All instruments for basic maxillofacial surgeries, maxillofacial trauma,orthognathicsurgeries, bonegrafting.

III. Instruments/EquipmentavailableatcentralresearchfacilityandDataResour ces

1) Stateof theart CT andMRIfacility
2) ComputerswithPrinters/Scannersandhighspeed internetconnection
3) Physicallibrary&e-Librarywithsubscription&accesstomanyjournals&databases
4) FacilityforVideo conferencingand Virtualclasses
5) Rt PCR
6) GradientPCR
7) Agarosegelelectrophoresissystem
8) LaminarflowwithHEPAfilter
9) Laminarflowforcellculture

10) LaminarflowforPCR
11) Refrigeratedmicrocentrifuge
12) Liquidnitrogenwithdispenser
13) Analyticalbalancehighend
14) Waterpurificationsystem

PROPOSEDNUMBER OFMDSSEATS

02(Two)per year in Oral & Maxillofacial Surgery

MODEOFSELECTIONOFCANDIDATETOTHECURRICULUM

Asper Institute'spolicy

GOALS AND OBJECTIVES OF THE

CURICULUMGOALS._

Thegoalsofthepost-graduatetraininginvariousspecialitiesistotrainthegraduatein DentalSurgerywhowill,

(i) practice respective speciality efficiently and effectively, backed by scientificknowledgeandskill;

(ii) Exerciseempathyandacaringattitudeandmaintainhighethicalstandards;

(iii) Continue to evince keen interest in professional education in the specialityandalliedspecialities whether in teachingorpractice;

(iv) Willing to share the knowledge and skills with any learner, junior or acolleague;

(v) To develop the faculty for critical analysis and evaluation of various conceptsandviews andtoadoptthemostrationalapproach.

OBJECTIVES._

The objective of the post-graduate training is to train a student so as to ensurehighercompetenceinbothgeneralandspecialareaofinterestandpreparehim or her for a career in teaching, research and specialty practice. A student mustachieve a high degree of clinical proficiency in the subject and developcompetence in research and its methodology in the concerned field. Theobjectives to be achieved by the candidate on completion of the course may beclassifiedasunder:–

(a) Knowledge(Cognitivedomain)

(b) Skills(Psychomotordomain)

(c) Humanvalues,ethicalpracticeandcommunicationabilities

(a) KNOWLEDGE._

(i) Demonstrateunderstandingofbasicsciencesrelevanttospeciality;

(ii) Describe etiology, pathophysiology, principles of diagnosis and managementofcommonproblemswithin thespecialityinadultsandchildren;

(iii) Identify social, economic, environmental and emotional determinants in agivencase andtake theminto accountforplannedtreatment;

(iv) Recognize conditions that may be outside the area of speciality orcompetenceandtoreferthemtotheconcernedspecialist;

(v) Update knowledge by self-study and by attending courses, conferences andseminarspertainingtospecialty;

(vi) Undertake audit, use information technology and carry out research in bothbasic and clinical with the aim of publishing or presenting the work at variousscientificgathering;

(b) SKILLS:

(i) Take a proper clinical history, examine the patient, perform essentialdiagnosticproceduresandorderrelevanttestsandinterpretthemtocome toareasonablediagnosis about thecondition;

(ii) Acquireadequateskillsandcompetenceinperformingvariousproceduresasreq uiredin thespecialty.

(c) HUMANVALUES,ETHICALPRACTICEANDCOMMUNICATIONABILITIES.

(i) adoptethicalprinciplesinallaspectsofpractice;

(ii) Fosterprofessionalhonestyandintegrity;

(iii) Deliver patient care irrespective of social status, caste, creed, or religion ofthepatient;

(iv) Develop communication skills, to explain various options available andobtaina true informedconsentfromthepatient;

(v) Provideleadershipandgetthebestoutofhisteaminacongenialworkingatmos phere;

(vi) Apply high moral and ethical standards while carrying out human or animalresearch;

(vii) Behumbleandacceptthelimitationsinhisknowledgeandskillandtoaskforhel p fromcolleagues when needed;

(viii) Respectpatient'srightsandprivilegesincludingpatient'srighttoinfo rmationandrightto seekasecondopinion.

PROPOSEDCOURSECONTANTATAIIMSKALYANI

Oral & Maxillofacial Surgery:

It will be a course of minimum 3 years duration, at the end of which the studentwould acquire the following knowledge and skills in the specialty of Oral & Maxillofacial Surgery.

1. OBJECTIVES:

The training program in Oral and Maxillofacial Surgery is structured to achieve thefollowingfiveobjectives-

- Knowledge
- Skills
- Attitude
- Communicative skills andability
- Research

Knowledge:

- To have acquired adequate knowledge and understanding of the etiology, pathophysiology and diagnosis, treatment planning of various common oral and Maxillofacial surgical problems both minor and major innature
- To have understood the general surgical principles like pre and post surgical management, particularly evaluation, post surgical care, fluid and electrolyte management, blood transfusion and post surgicalpainmanagement.
- Understanding of basic sciences relevant to practice of oral and maxillofacialsurgery
- Able to identify social, cultural, economic, genetic and environmental factors and their relevance to disease process management in the oral and Maxillofacialregion.
- Essential knowledge of personal hygiene and infection control, prevention of cross infection and safe disposal of hospital waste keeping in view the high prevalence of hepatitis andHIV.

Skills:

- To obtain proper clinical history, methodical examination of the patient, perform essential diagnostic procedures and order relevant laboratory tests and interpret them and to arrive at a reasonable diagnosis about the surgicalcondition.
- To perform with competence minor oral surgical procedures and common maxillofacial surgery. To treat both surgically and medically the problems of the oral and Maxillofacial and the relatedarea.
- Capable of providing care for maxillofacial surgerypatients.

Attitude:

- Develop attitude to adopt ethical principles in all aspect of surgical practice, professional honesty and integrity are to be fostered. Surgical care is to be delivered irrespective of the social status, caste, creed or religion of thepatient.
- Willing to share the knowledge and clinical experience with professionalcolleagues.
- Willing to adopt new techniques of surgical management developed from time to time based on scientific research which are in the best interest of thepatient

- Respect patient right and privileges, including patients right to information and right to seek a secondopinion.
- Develop attitude to seek opinion from an allied medical and dental specialists as and whenrequired.

Communication Skills:

- Develop adequate communication skills particularly with the patients giving them the various options available to manage a particular surgical problem and obtain a true informed consent from them for the most appropriate treatment available at that point of time
- Develop the ability to communicate with professionalcolleagues.
- Develop ability to teachundergraduates.

COURSE CONTENT:

The speciality of Oral & Maxillofacial Surgery deals with the diagnosis and management of the diseases of stomatognathic system, jaw bones, cranio-maxillofacial region, salivary glands and temporomandibular joints etc. Within this framework it also supports many vital organs like eye, oropharynx, nasopharynx and major blood vessels and nerves. The traumatic injuries of maxillofacial skeleton are independently managed by Oral & MaxillofacialSurgeons. Whenever there are orbital injuries the ophthalmologists are trained only to tackle injuries of the eye ball (globe) but if there are associated injuries of the orbital skeleton, the Maxillofacial Surgeon is involved in its re-construction. Similarly, nasal bone fracture may be managed by ENT surgeons. Most of the time nasal bone fractures are associated with fractures of the maxilla, mandible and zygomatic bones which are being managed by Oral & Maxillofacial Surgeons. The maxillofacial facial injuries at times are associated with head injuries also. The Oral & maxillofacial Surgeon is involved in the management of cleft lip & cleft palate, orthognathic surgery, micro vascular surgery, reconstructive and oncological surgical procedures of maxillofacial region. The speciality of Oral & Maxillofacial Surgery is a multi disciplinaryspeciality and needs close working in co-ordination with Neurosurgeons, Oncosurgeons, Opthalmologists, ENT Surgeons and Plastic Surgeons. The Oral & Maxillofacial Surgeons, Ophthalmologist, ENT Surgeons, Plastic Surgeons, Neuro-Surgeons and Oncologists complement each other by performing Surgical Procedures with their respective expertise and knowledge thereby benefiting the patients and students of the respectivespecialities.

The program outline addresses both the knowledge needed in Oral and Maxillofacial Surgery and allied medical specialties in its scope. A minimum of three years of formal training through a graded system of education as specified will equip the trainee with skill and knowledge at its completion to be able to practice basic oral and Maxillofacial surgery competently and have the ability to intelligently pursue further apprenticeship towards advanced Maxillofacial surgery.

The topics are considered as under:-

A) Applied Basic sciences
B) Oral and Maxillofacialsurgery
C) Alliedspecialties

A) Applied BasicSciences:

Applied Anatomy, Physiology, Biochemistry, General and Oral Pathology and Microbiology, Pharmacology and Knowledge in BasicStatistics.

Applied Anatomy:

1. Surgical anatomy of the scalp, temple andface
2. Anatomy of the triangles of neck and deep structures of theneck
3. Cranial and facial bones and its surrounding soft tissues with its applied aspects in maxillofacialinjuries.
4. Muscles of head and neck; chest , lower and upper extremities (in consideration to grafts/flaps)
5. Arterial supply, venous drainage and lymphatics of head andneck

6. Congenital abnormalities of the head andneck
7. Surgical anatomy of the cranialnerves
8. Anatomy of the tongue and its appliedaspects
9. Surgical anatomy of the temporal and infratemporalregions
10. Anatomy and its applied aspects of salivary glands, pharynx, thyroid and parathyroid gland, larynx, trachea,esophagus
11. Tooth eruption, morphology, andocclusion.
12. Surgical anatomy of thenose.
13. The structure and function of the brain including surgical anatomy of intra cranial venous sinuses.
14. Autonomous nervous system of head andneck
15. Functional anatomy of mastication, deglutition, speech, respiration andcirculation
16. Development of face, paranasal sinuses and associated structures and their anomalies
17. TMJ: surgical anatomy andfunction

Physiology:

1. **Nervoussystem**
   - Physiology of nerve conduction, pain pathway, sympathetic and parasympathetic nervous system, hypothalamus and mechanism of controlling bodytemperature
2. **Blood**
   - Composition
   - Haemostasis, various blood dyscrasias and management of patients with the same
   - Hemorrhage and itscontrol
   - Capillary and lymphaticcirculation.
   - Blood grouping, transfusingprocedures.
3. **Digestivesystem**
   - Saliva - composition and functions ofsaliva
   - Mastication, deglutition, digestion, assimilation
   - Urine formation, normal and abnormalconstituents
4. **Respiration**
   - Control of ventilation, anoxia, asphyxia, artificialrespiration
   - Hypoxia – types andmanagement
5. **CardioVascularSystem**
   - Cardiac cycle,
   - Shock
   - Heartsounds,
   - Bloodpressure,
   - Hypertension:
6. **Endocrinology**
   - General endocrinal activity and disorder relating to thyroidgland,
   - Parathyroid gland, adrenal gland, pituitary gland, pancreas andgonads:
   - Metabolism ofcalcium

7. **Nutrition**
   - General principles of a balanced diet, effect of dietary deficiency, protein energy malnutrition, Kwashiorkor, Marasmus.
   - Fluid and Electrolytic balance in maintaining haemostasis and significance in minor and major surgicalprocedures.

Biochemistry:

- General principles governing the various biological activities of the body, such as osmotic pressure, electrolytes, dissociation, oxidation, reductionetc.
- General composition of thebody
- Intermediarymetabolism
- Carbohydrates, proteins, lipids, and theirmetabolism
- Nucleoproteins, nucleic acid and nucleotides and theirmetabolism
- Enzymes, vitamins andminerals
- Hormones
- Body and otherfluids.
- Metabolism of inorganicelements.
- Detoxification in thebody.
- Antimetabolites.

Pathology:

1. **Inflammation –**
   - Repair and regeneration, necrosis andgangrene
   - Role of component system in acuteinflammation,
   - Role of arachidonic acid and its metabolites in acuteinflammation,
   - Growth factors in acuteinflammation
   - Role of molecular events in cell growth and intercellular signaling cell surface receptors
   - Role of NSAIDs ininflammation,
   - Cellular changes in radiation injury and itsmanifestation:
2. **Haemostasis**
   - Role of endothelium inthrombogenesis,
   - Arterial and venousthrombi,
   - Disseminated Intravascularcoagulation
3. **Shock:**
   - Pathogenesis of hemorrhagic, neurogenic, septic, cardiogenicshock
   - Circulatory disturbances, ischemia, hyperemia, venous congestion, edema, infarction
4. **Chromosomalabnormalities:**
   - Marfans Syndrome, Ehler'sDanlos Syndrome, Fragile X-Syndrome
5. **Hypersensitivity:**
   - Anaphylaxis, type 2 hypersensitivity, type 3 hyper sensitivity and cell mediated reaction and its clinical importance, systemic lupuserythematosus.
   - Infection and infectivegranulomas.
6. **Neoplasia:**
   - Classification oftumors.
   - Carcinogenesis and carcinogens- chemical, viral andmicrobial
   - Grading and staging of cancers, tumor Angiogenesis, Paraneoplastic syndrome, spread oftumors
   - Characteristics of benign and malignanttumors
7. **Others:**
   - Sex linkedagammaglobulinemia.
   - AIDS
   - Management of immuno deficiency patients requiring surgicalprocedures
   - De GeorgeSyndrome

- Ghons complex, post primary pulmonary tuberculosis – pathology and pathogenesis.

Oral Pathology:

- Developmental disturbances of oral and Para oralstructures
- Regressive changes ofteeth.
- Bacterial, viral and mycotic infections of oralcavity
- Dental caries,, diseases of pulp and periapicaltissues
- Physical and chemical injuries of the oralcavity
- Oral manifestations of metabolic and endocrinaldisturbances
- Diseases of jawbones andTMJ
- Diseases of blood and blood forming organs in relation to oralcavity
- Cysts of the oralcavity
- Salivary gland diseases
- Role of laboratory investigations in oralsurgery

Microbiology:

- Immunity
- Knowledge of organisms commonly associated with diseases of oralcavity.
- Morphology cultural characteristics of strepto, staphylo, pneumo, gono, meningo, clostridium group of organisms, spirochetes, organisms of TB, leprosy, diphtheria, actinomycosisandmoniliasis
- Hepatitis B and itsprophylaxis
- Culture and sensitivitytest
- Laboratorydeterminations
- Blood groups, blood matching, RBC and WBCcount
- Bleeding and clotting time etc, smears andcultures,
- Urine analysis andcultures.

Applied Pharmacology and Therapeutics:

1. Definition of terminologiesused
2. Dosage and mode of administration ofdrugs.
3. Action and fate of drugs in thebody
4. Drug addiction, tolerance and hypersensitivityreactions.
5. Drugs acting on theCNS
6. General and local anesthetics, hypnotics, analeptics, andtranquilizers.
7. Chemo therapeutics andantibiotics
8. Analgesics and antipyretics
9. Antitubercular and antisyphiliticdrugs.
10. Antiseptics, sialogoguesandantisialogogues
11. Haematinics
12. Antidiabetics
13. Vitamins A, B-complex, C, D, E,K

B) Oral and MaxillofacialSurgery:

- Evolution of Maxillofacialsurgery.
- Diagnosis, history taking, clinical examination,investigations.
- Informed consent/medico-legalissues.
- Concept of essential drugs and rational use ofdrugs.

- Communication skills with patients- understanding, clarity in communication, compassionate explanations and giving emotional support at the time of suffering and bereavement
- Principles of surgical audit – understanding the audit of process and outcome. Methods adopted for the same. Basicstatistics.
- Principles of evidence based surgery- understanding journal based literature study; the value of textbook, reference book articles, value of review articles; original articles and their critical assessment, understanding the value of retrospective, prospective, randomized control and blinded studies, understanding the principles and the meaning of various Bio-statistical tests applied in these studies.
- Principles of surgery- developing a surgical diagnosis, basic necessities for surgery, aseptic technique, incisions, flap designs, tissue handling, hemostasis, dead space management, decontamination and debridement, suturing, edema control, patient general health andnutrition.
- Medical emergencies – Prevention and management of altered consciousness, hyper sensitivity reaction, chest discomfort, respiratorydifficulty.
- Pre operative workup – Concept of fitness for surgery; basic medical work up; work up in special situation like diabetes, renal failure, cardiac and respiratory illness; riskstratification
- Surgical sutures,drains
- Post operative care- concept of recovery room care, Airway management, Assessment of Wakefulness, management of cardio vascular instability in this period, Criteria for shifting to the ward, painmanagement
- Wound management- Wound healing, factors influencing healing, basic surgical techniques, Properties of suture materials, appropriate use ofsutures.
- Surgical Infections – Asepsis and antisepsis, Microbiological principles, Rational use of antibiotics, special infections like Synergistic Gangrene and Diabetic foot infection, Hepatitis and HIV infection and crossinfection.
- Airway obstruction/management – Anatomy of the airway, principles of keeping the airway patent, mouth to mouth resuscitation, Oropharyngeal airway, endotracheal intubation, Cricothyroidectomy,Tracheostomy.
- Anesthesia – stages of Anesthesia, pharmacology of inhalation, intravenous and regional anesthetics, musclerelaxants.
- Facial pain; Facial palsy and nerveinjuries.
- Pain control – acute and chronic pain, cancer and non-cancer pain, patient controlledanalgesia
- General patient management – competence in physical assessment of patients of surgery, competence in evaluation of patients presenting with acute injury, particularly to maxillofacial region. Competence in the evaluation of management of patients forAnesthesia
- Clinical oral surgery – all aspects of dentoalveolarsurgery
- Pre-prosthetic surgery – A wide range of surgical reconstructive procedures involving their hard and soft tissues of the edentulousjaws.
- Temporomandibular joint disorders – TMJ disorders and their sequelae needexpert evaluation, assessment and management. It is preferable to be familiarwith diagnostic and therapeutic arthroscopic surgeryprocedures.
- Tissue grafting – Understanding of the biological mechanisms involved in autogenous and heterogeneous tissuegrafting.
- Reconstructive oral and maxillofacial surgery – hard tissue and soft tissue reconstruction.
- Cyst and tumors of head and neck region and their management – including principles of tumor surgery, giant cell lesion of jaw bones, fibro osseous lesions of jaw.

- Neurological disorders of maxillofacial region-diagnosis and management of Trigeminal Neuralgia, MPDS, Bells palsy, Frey's Syndrome, Nerveinjuries
- Maxillofacial trauma – basic principles of treatment, primary care, diagnosis and management of hard and soft tissue injuries, Comprehensive management including polytraumapatients
- Assessment of trauma-multiple injuries patient, closed abdominal and chest injuries, penetrating injuries, pelvic fractures, urological injuries, vascularinjuries.
- Orthognathic surgery – The trainee must be familiar with the assessment and correcting of jawdeformities
- Laser surgery – The application of laser technology in the surgical treatment of lesions amenable to suchtherapy
- Distraction osteogenesis in maxillofacialregion.
- Cryosurgeries – Principles, the application of cryosurgery in the surgical management of lesions amenable to suchsurgeries.
- Cleft lip and palate surgery- detailed knowledge of the development of the face, head and neck, diagnosis and treatment planning, Current concepts in the management of cleft lip and palate deformity, knowledge of nasal endoscopy and other diagnostic techniques in the evaluation of speech and hearing, concept of multi disciplinaryteammanagement.
- Aesthetic facial surgery – detailed knowledge of structures of face & neck including skin and underlying soft tissues, diagnosis and treatment planning of deformities and conditions affecting facial skin, underlying facial muscles, bone, eyelids, external ear etc., surgical management of post acne scaring, face lift, blepharoplasty, otoplasty, facial bone recountouringetc.
- Craniofacial surgery – basic knowledge of developmental anomalies of face, head and neck, basics concept in the diagnosis and planning of various head and neck anomalies including facial cleft, craniosynostosis, syndromes, etc., Current concepts in the management of craniofacialanomalies.
- Head and neck oncology – understanding of the principles of management of head and neck oncology including various pre cancerous lesions, Experience in the surgical techniques of reconstruction following ablativesurgery.
- Micro vascularsurgery.
- Implantology – principles, surgical procedures for insertion of various types of implants.
- Maxillofacial radiology/ radiodiagnosis
- Other diagnostic methods and imagingtechniques

C) AlliedSpecialties:

- General medicine: General assessment of the patient including children with special emphasis on cardiovascular diseases, endocrinal, metabolic respiratory and renal diseases, Blooddyscrasias
- General surgery: Principles of general surgery, exposure to common general surgicalprocedures.
- Neuro – surgery: Evaluation of a patient with head injury, knowledge & exposure of various Neuro – surgicalprocedures
- ENT/Ophthalmology: Examination of ear, nose, throat, exposure to ENT surgical procedures, ophthalmic examination and evaluation, exposure to ophthalmic surgicalprocedures.

- Orthopedic: basic principles of orthopedic surgery, bone diseases and trauma as relevant to Maxillofacial surgery, interpretation of radiographs, CT, MRI and ultrasound
- Anesthesiology: Evaluation of patients for GA technique, general anesthetic drugs use and complications, management of emergencies, various IV sedation techniques.
- Plastic Surgery- BasicPrinciples

TEACHING / LEARNING ACTIVITIES:

The post graduate is expected to complete the following at the end of :

I Year

Study ofapplied basic sciences including practicals (wherever necessary), basic computer sciences, exodontia, seminars on basic topics, selection of dissertation topic, library assignment topic, attending O.T, ward rounds, Medical Record keeping, Pre-clinical exercises, preparation of synopsis and its submission within the six months after admission to the university as per calendar of events.

Rotation and postings in other departments:

Generalmedicine	- 1month
Generalsurgery	- 1month
Ophthalmology	- 15days
NeuroSurgery	- 15days
ENT	- 15days
Orthopedic	- 15days
Plastic Surgery	- 15days
Casualty	- 15days
Anesthesia(ICU)	- 15days
Radiology (CT,MRI, USG)	- 15days

II Year

- Minor oral surgery and higher surgicaltraining
- Submission of libraryassignment
- Oncologyposting – 1month

III Year

- Maxillofacialsurgery
- Submission of dissertation to the university, six months before the finalexamination.

It is desirable to enter general surgical skills and operative procedures that are observed, assisted or performed in the log book in the format as given below:-

Sl.No	Procedure	Category	Number
1	Injection I.M. and I.V.	PI	50, 20
2	Minor suturing and removal of sutures	PI	N,A
3	Incision & drainage of an abscess	PI	10
4	Surgical extraction	PI	15
5	Impacted teeth	PI, A	30,20

6	Pre prosthetic surgery- corrective procedures ridge extension ridge reconstruction	 PI A A	 10 3 3
7	OAF closure	PI, A	3,2
8	Cyst enuleation	PI,A	5,5
9	Mandibular fractures	PI,A	10,10
10	Peri-apical surgery	PI,A	5
11	Infection management	PI,A	3,3
12	Biopsy procedures	PI, A	10, 3
13	Removal of salivary calculi	A	3
14	Benign tumors	A	3,3
15	mid face fractures	PI,A	3,5
16	Implants	PI,A	5,5
17	Tracheotomy	A	2
18	Skin grafts	PI,A	2,2
19	Orthognathic surgery	A,O	3,5
20	Harvesting bone & cartilage grafts Iliac crest Rib Calvarial Fibula	A,O A,O A,O A,O	3,5 3,3 2,2 2,2
21	T.M. Joint surgery	A	3
22	Jaw resections	A,O	3,5
23	Onco surgery	A,O	3,3
24	Micro vascular anastomosis	A,O	2,2
25	Cleft lip & palate	A,O	3,5
26	Distraction osteogenesis	A,O	2,3
27	Rhinoplasty	A,O	2,3
28	Access osteotomies and base of skull surgeries	A,O	1,3
29	Emergency Management for OMFS Patients in Casualty / Accident & Emergency	PI,O	5,5

PI:- Performed Independently
A:- Assisted
O:- Observed

Monitoring Learning Progress:

It is essential to monitor the learning progress to each candidate through continuous appraisal and regular assessment. It not only helps teachers to evaluate students, but also students to evaluate themselves. The monitoring to be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using checklists that assess various aspects. Checklists are given in SectionIV.

Paper wise distribution of syllabus:

PART- I :

Applied Basic Sciences

PART-II:

Paper– I:Minor Oral Surgery and Maxillofacial Trauma

Minor Oral Surgery:

- **Principles of Surgery**: Developing A Surgical Diagnosis, Basic Necessities For Surgery, Aseptic Technique, Incisions, Flap Design Tissue Handling, Haemostasis, Dead Space Management, Decontamination And Debridement, Suturing, Oedema Control, Patient General Health AndNutrition.
- **Medical Emergencies**: Prevention and management of altered cons-ciousness (syncope, orthostatic hypotension, seizures, diabetes mellitus, adrenal insufficiency), hypersensitivity reactions, chest discomfort, and respiratory difficulty.
- **Examination and Diagnosis**: Clinical history, physical and radiographic, clinical and laboratory diagnosis, oral manifestations of systemic diseases, implications of systemic diseases in surgicalpatients.
- **Haemorrhage and Shock**: Applied physiology, clinical abnormalities of coagulation, extra vascular hemorrhage, and hemorrhagic lesions, management of secondary hemorrhage,shock.
- **Exodontia**: Principles of extraction, indications and contraindications, types of extraction, complications and their management, principles of elevators and elevators used in oralsurgery.
- **Impaction:** Surgical anatomy, classification, indications and contraindications, diagnosis, procedures, complications and theirmanagement.
- **Surgical aids to eruption of teeth**: Surgical exposure of unerupted teeth, surgical repositioning of partially eruptedteeth.
- **Transplantation ofteetH**
- **Surgical Endodontics:** Indications and contraindications, diagnosis, procedures of periradicularsurgery
- **Preprosthetic Surgery:** Requirements, types (alvoloplasty, tuberosity reduction, mylohyoid ridge reduction, genial reduction, removal of exostosis,vestibuloplasty)
- **Procedures to Improve Alveolar Soft Tissues**: Hypermobile tissues- operative / sclerosing method, epulisfissuratum, frenectomyandfrenotomy
- **Infectionsof Head and Neck:** Odontogenic and non Odontogenic infections, factors affecting spread of infection, diagnosis and differential diagnosis, management of facial space infections, Ludwig angina, cavernous sinus thrombosis.
- **Chronic infections of the jaws:** Osteomyelitis (types, etiology, pathogenesis, management)osteoradionecrosis
- **MaxillarySinus:**Maxillarysinusitis–types,pathology,treatment,closureofOro – antral fistula, Caldwell- luc operation
- **Cysts of the Orofacial Region:** Classification, diagnosis, management of OKC, dentigerous, radicular, non Odontogenic,ranula
- **Neurological disorders of the Maxillofacial Region:** Diagnosis and management of trigeminal neuralgia, MPDS, bell's palsy, Frey's syndrome, nerve injuries.
- **Implantology**: Definition, classification, indications and contraindications, advantages and disadvantages, surgicalprocedure.
- **Anesthesia**
  Local Anesthesia**:**
  Classification of local anesthetic drugs, mode of action, indications and contra indications, advantages and disadvantages, techniques, complications and their management.

General Anesthesia:

Classification, stages of GA, mechanism of action, indications, and contra indications, advantages and disadvantages, post anesthetic complications and emergencies, anesthetic for dental procedures in children, pre medication, conscious sedation, legal aspects for GA

Maxillofacial Trauma:

- Surgical Anatomy of Head andNeck.
- Etiology ofInjury.
- Basic Principles of Treatment
- Primary Care: resuscitation, establishment of airway, management of hemorrhage, management of head injuries and admission tohospital.
- Diagnosis: clinical,radiological
- Soft Tissue Injury of Face and Scalp: classification and management of soft tissue wounds, injuries to structure requiring specialtreatment.
- Dento Alveolar Fractures: examination and diagnosis, classification, treatment, prevention.
- Mandibular Fractures: classification, examination and diagnosis, general principles of treatment, complications and theirmanagement
- Fracture of Zygomatic Complex: classification, examination and diagnosis, general principles of treatment, complications and theirmanagement.
- Orbital Fractures: blow outfractures
- NasalFractures
- Fractures of Middle Third of the Facial Skeleton: emergency care, fracture of maxilla, and treatment of le fort I, II, III, fractures of Nasoorbitoethmoidal region.
- Opthalmic Injuries: minor injuries, non-perforating injuries, perforating injuries, retro bulbar hemorrhage, and traumatic opticneuropathy.
- Traumatic Injuries To Frontal Sinus: diagnosis, classification,treatment
- Maxillofacial Injuries in Geriatric and PediatricPatients.
- Gun Shot Wounds and WarInjuries
- Osseointegration in MaxillofacialReconstruction
- Metabolic Response to Trauma: neuro endocrine responses, inflammatory mediators, clinicalimplications
- Healing of Traumatic Injuries: soft tissues, bone, cartilage, response of peripheral nerve toinjury
- Nutritional consideration followingTrauma.
- Tracheostomy: indications and contraindications, procedure, complications and theirmanagement.

Paper – II :Maxillofacial Surgery

a) Salivarygland

- Sialography
- Salivary fistula andmanagement
- Diseases of salivary gland – developmental disturbances, cysts, inflammation andsialolithiasis
- MucoceleandRanula
- Tumors of salivary gland and theirmanagement
- Staging of salivary glandtumors
- Parotidectomy

b) Temporomandibular Joint

- Etiology, history signs, symptoms, examination and diagnosis of temporomandibularjointdisorders
- Ankylosis and management of the same with different treatmentmodalities
- MPDS andmanagement
- Condylectomy – differentprocedures
- Various approaches toTMJ
- Recurrent dislocations – Etiology andManagement

c) Oncology

- Biopsy
- Management of pre-malignant tumors of head and neckregion
- Benign and Malignant tumors of Head and Neckregion
- Staging of oral cancer and tumormarkers
- Management of oral cancer
- Radical Neckdissection
- Modes of spread oftumors
- Diagnosis and management of tumors of nasal, paranasal, neck, tongue, cheek, maxilla andmandible
- Radiation therapy in maxillofacialregions
- Lateral neck swellings

d) Orthognathicsurgery

- Diagnosis and treatmentplanning
- Cephalometric analysis
- Modelsurgery
- Maxillary and mandibular repositioningprocedures
- Segmentalosteotomies
- Management of apertognathia
- Genioplasty
- Distractionosteogenesis

e) Cysts and tumors of orofacialregion

- Odontogenic and non-Odontogenic tumors and theirmanagement
- Giant Cell lesions ofjawbone
- Fibro osseous lesions ofjawbone
- Cysts of jaw

f) Lasersurgery

- The application of laser technology in surgical treatment oflesions

g) Cryosurgery

- Principles, applications of cryosurgery in surgicalmanagement

h) Cleft lip and palatesurgery

- Detailed knowledge of the development of the face, head andneck
- Diagnosis and treatmentplanning
- Current concepts in the management of cleft lip and palatedeformity
- Knowledge of Naso endoscopy and other diagnostic techniques in the evaluation of speech andhearing
- Concept of multidisciplinary teammanagement

i) Aesthetic facialsurgery

- Detailed knowledge of the structures of the face and neck including skinand underlying softtissue
- Diagnosis and treatment planning of deformities and conditions affecting facial skin
- Underlying facial muscles, bone, Eyelids, externalear
- Surgical management of post acne scarring, facelift, blepharoplasty, otoplasty, facial bone recontouring,etc

j) Craniofacialsurgery

- Basic knowledge of developmental anomalies of the face, head andneck
- Basic concepts in the diagnosis and planning of various head and neck anomalies including facial clefts, craniosynostosis, syndromes,etc.
- Current concept in the management of Craniofacialanomalies

Paper – III : Essays (descriptive and analyzing type questions)

Scheme of Examination:

A. Theory:	Part-I:	Basic SciencesPaper	-	**100 Marks**
	Part-II:	Paper-I, Paper-II&Paper-III	-	**300 Marks**
				(100 Marks for each Paper)

Written examination shall consist of Basic Sciences Paper (Part-I) of three hours duration and should be conducted at the end of First year of MDS course. Part-II Examination will be conducted at the end of Third year of MDS course. Part-II Examination will consist of Paper-I, Paper-II & Paper-III, each of three hours duration. Paper-I & Paper-II shallconsist of two long answer questions carrying 25 marks each and five questions carrying 10 marks each. Paper-III will be on Essays. In Paper-III three Questions will be given and student has to answer any two questions. Each question carries 50 marks. Questions on recent advances may be asked in any or all the papers. Distribution of topics for each paper will be as follows:*

PART-I: Applied Basic Sciences: Applied Anatomy, Physiology, & Biochemistry, Pathology, Microbiology, Pharmacology, Research Methodology and Biostatistics.

PART- II

Paper – I : Minor Oral Surgery and Maxillofacial Trauma
Paper – II : Maxillofacial Surgery
Paper – III : Essays (descriptive and analyzing type questions)

**The topics assigned to the different papers are generally evaluated under those sections. However a strict division of the subject may not be possible and some overlapping of topics is inevitable. Students should be prepared to answer overlapping topics*.

B. Practical /ClinicalExamination	**-**	**200Marks**
1. MinorOralSurgery	**-**	100 Marks

Each candidate is required to perform the minor oral surgical procedures under local anaesthesia. The minor surgical cases may include removal of impacted lower third

molar, cyst enucleation, any similar procedure where students can exhibit their professional skills in raising the flap, removing the bone and suturing the wound.

2.Case presentationanddiscussion: 100 Marks

(a) Onelong case - 60Marks
(b) Twoshortcases - 40Marks
(20 marks each)

C. VivaVoce - 100 Marks

i. Viva-Voceexamination: *80 Marks*

All examiners will conduct viva-voce conjointly on candidate's comprehension, analytical approach, expression, interpretation of data and communication skills. It includes all components of course contents. It includes presentation and discussion on dissertation also.

ii. Pedagogy: *20 Marks*

A topic be given to each candidate in the beginning of clinical examination. He/she is asked to make a presentation on the topic for 8-10 minutes

PROPOSAL FOR MDS COURSE at AIIMS, Kalyani

Speciality : ORTHODONTICS and DENTOFACIAL ORTHOPAEDICS

COURSE NAME	**:**	**MDS**
SPECIALITY	**:**	**ORTHODONTICS and DENTOFACIAL ORTHOPAEDICS**
DURATION OF COURSE	**:**	3 years
ELIGIBILITY	**:**	B.D.S.

GOAL :

The goal Master of Dental Surgery (M.D.S.) course in Orthodontics and Dentofacial Orthopaedics is to provide comprehensive training for teaching theoretical, practical and clinical aspects of Orthodontics, practice the clinical science of orthodontics efficiently and effectively, backed by scientific knowledge and skill, as well as the research methodology.

OBJECTIVES:

The candidate qualifying for the award of M.D.S. (Orthodontics and Dentofacial Orthopaedics) should ensure and achieve the following four objectives

Knowledge:

1. The dynamic interaction of biologic processes and mechanical forces acting on the stomatognathic system during orthodontic treatment
2. The etiology, pathophysiology, diagnosis and treatment planning of various common Orthodontic problems
3. Various treatment modalities in Orthodontics – preventive, interceptive and corrective.
4. Basic sciences relevant to the practice of Orthodontics
5. Interaction of social, cultural, economic, genetic and environmental factors and their relevance to management of oro – facial deformities
6. Factors affecting the long-range stability of orthodontic correction and their management
7. Personal hygiene and infection control, prevention of cross infection and safe disposal of hospital waste, keeping in view the high prevalence of Hepatitis and HIV and other highly contagious diseases.

Skills:

1. To obtain proper clinical history, methodical examination of the patient, perform essential diagnostic procedures, and interpret them and arrive at a reasonable diagnosis about the Dento-facial deformities.
2. To be competent to fabricate and manage the most appropriate appliance – intra or extra oral, removable or fixed, mechanical or functional, and active or passive – for the treatment of any orthodontic problem to be treated singly or as a part of multidisciplinary treatment of oro-facial deformities.

Attitude:

1. Develop an attitude to adopt ethical principles in all aspects of Orthodontic practice.
2. Professional honesty and integrity are to be fostered
3. Treatment care is to be delivered irrespective of the social status, cast, creed and religion of the patients.
4. Willingness to share the knowledge and clinical experience with professional colleagues
5. Willingness to adopt, after a critical assessment, new methods and techniques of orthodontic management developed from time to time based on scientific research, which are in the best interest of the patient
6. Respect patients' rights and privileges, including patients right to information and right to seek a second opinion
7. Develop attitude to seek opinion from allied medical and dental specialists as and when required.

Communication Skills:

1. Develop adequate communication skills particularly with the patients giving them the various options available to manage a particular Dento-facial problem and to obtain a true informed consent from them for the most appropriate treatment available at that point of time.
2. Develop the ability to communicate with professional colleagues, in Orthodontics or other specialties through various media like correspondence, Internet, e-video, conference, etc. to render the best possible treatment.

COURSE CONTENT:

THEORY

The program outlined, addresses both the knowledge needed in Orthodontics and allied Medical specialties in its scope.

Spread of the Curriculum:

PART-I:

A. Applied Basic Sciences:

Applied Anatomy:

a) Prenatal growth of head:
b) Postnatal growth of head:
c) Bone growth:
d) Assessment of growth and development:
e) Muscles of mastication:
f) Development of dentition and occlusion:
g) Assessment of skeletal age.

Physiology:

a) Endocrinology and its disorders:
b) Calcium and its metabolism:
c) Nutrition-metabolism and disorders:
d) Muscle physiology:
e) Craniofacial Biology:
f) Bleeding disorders in orthodontics:

Dental Materials:

a) Gypsum products:
b) Impression materials:
c) Acrylics:
d) Composites:
e) Banding and bonding cements:
f) Wrought metal alloys:
g) Orthodontic arch wires
h) Elastics:

Genetics:

a) Cell structure, DNA, RNA, protein synthesis, cell division
b) Chromosomal abnormalities
c) Principles of orofacial genetics
d) Genetics in malocclusion
e) Molecular basis of genetics
f) Studies related to malocclusion
g) Recent advances in genetics related to malocclusion
h) Genetic counseling
i) Bioethics and relationship to Orthodontic management of patients.

Physical Anthropology:

a) Evolutionary development of dentition
b) Evolutionary development of jaws.

Pathology:

a) Inflammation
b) Necrosis

Biostatistics:

a) Statistical principles
b) Sampling and Sampling technique
c) Experimental models, design and interpretation
d) Development of skills for preparing

clear concise and cognent scientific abstracts and publication

Applied Research Methodology In Orthodontics:

a) Experimental design
b) Animal experimental protocol
c) Principles in the development, execution and interpretation of methodologies in Orthodontics
d) Critical Scientific appraisal of literature.

Applied Pharmacology

a) Definitions & terminologies
b) Dosage and mode of administration
c) Action and fate of drugs in the body,
d) Vitamins:

PART-II:

Paper-I:Basic Orthodontics

Orthodontic History:

a) Historical perspective,
b) Evolution of orthodontic appliances,
c) Pencil sketch history of Orthodontic peers
d) History of Orthodontics in India

Concepts of Occlusion and Esthetics:

a) Structure and function of all anatomic components of occlusion,
b) Mechanics of articulation,
c) Recording of masticatory function,
d) Diagnosis of Occlusal dysfunction,
e) Relationship of TMJ anatomy and pathology and related neuromuscular physiology.

Etiology and Classification of Malocclusion:

a) A comprehensive review of the local and systemic factors in the causation of malocclusion
b) Various classifications of malocclusion

Dentofacial Anomalies:

a) Anatomical, physiological and pathological characteristics of major groups of developmental defects of the orofacial structures.

Diagnostic Procedures and Treatment Planning in Orthodontics:

a) Emphasis on the process of data gathering, synthesis and translating it into a treatment plan
b) Problem cases – analysis of cases and its management
c) Adult cases, handicapped and mentally retarded cases and their special problems
d) Critique of treated cases.

Cephalometrics

a) Instrumentation
b) Image processing

c) Tracing and analysis of errors and applications
d) Radiation hazards
e) Advanced Cephalometrics techniques including digital cephalometrics
f) Comprehensive review of literature
g) Video imaging principles and application.

Practice Management in Orthodontics:

a) Economics and dynamics of solo and group practices
b) Personal management
c) Materials management
d) Public relations
e) Professional relationship
f) Dental ethics and jurisprudence
g) Office sterilization procedures
h) Community based Orthodontics.

Paper-II:Clinical Orthodontics

Myofunctional Orthodontics:

a) Basic principles
b) Contemporary appliances –design, manipulation and management
c) Case selection and evaluation of the treatment results
d) Review of the current literature.

DentofacialOrthopedics:

a) Principles
b) Biomechanics
c) Appliance design and manipulation
d) Review of contemporary literature

Cleft lip and palate rehabilitation:

a) Diagnosis and treatment planning
b) Mechanotherapy
c) Special growth problems of cleft cases
d) Speech physiology, pathology and elements of therapy as applied to orthodontics e. Team rehabilitative procedures.

Biology of tooth movement:

a) Principles of tooth movement-review
b) Review of contemporary literature
c) Applied histophysiology of bone, periodontal ligament
d) Molecular and ultra cellular consideration in tooth movement

Orthodontic / Orthognathic surgery:

a) Orthodontist's role in conjoint diagnosis and treatment planning
b) Pre and post-surgical Orthodontics
c) Participation in actual clinical cases, progress evaluation and post retention study
d) Review of current literature

Ortho / Perio / Prostho/Endo inter relationship:

a) Principles of interdisciplinary patient treatment

b) Common problems and their management

Basic principles of mechanotherapy (includes removable appliances and fixed appliances):

a) Design
b) Construction
c) Fabrication
d) Management
e) Review of current literature on treatment methods and results

Applied preventive aspects in Orthodontics:

Caries and periodontal disease prevention

a) Oral hygiene measures
b) Clinical procedures

Interceptive Orthodontics:

a) Principles
b) Growth guidance
c) Diagnosis and treatment planning
d) Therapy emphasis on:
    - ✓ Dento-facial problems
    - ✓ Tooth material discrepancies
    - ✓ Minor surgery for Orthodontics

Evidence Based Orthodontics:

Different types of fixed Mechanotherapy:

Orthodontic Management of TMJ problems, sleep-apnoea etc.:

Retention and relapse:

a) Mechanotherapy – special reference to stability of results with various procedures
b) Post retention analysis
c) Review of contemporary literature

Recent Advances :

a) Use of implants
b) Lasers
c) Application of F.E.M.
d) Distraction Osteogenesis
e) Invisible Orthodontics
f) 3D imaging Digital Orthodontics, Virtual Treatment Planning
g) CAD-CAM bracket Customization
h) Robotic Wire Bending
i) Accelerated Orthodontics
    1. Surgical
    2. Device assisted or mechanical stimulation
    3. Biochemical Mediators
j) Lingual Orthodontics

Paper-III: Essays (descriptive and analyzing type questions)

PRE – CLINICAL EXERCISES
(Should be completed within 3 months)

A general outline of the type of exercises is given here:

1. General Wire bending exercises to develop the manual dexterity.
2. Clasps, Bows and springs used in the

removable appliances.

3. Soldering and welding exercises.
4. Fabrication of removable, habit breaking, mechanical and functional appliances, also all types of space maintainers and space regainers.
5. Bonwill Hawley Ideal arch preparation.
6. Construction of orthodontic models trimmed and polished.
7. Cephalometric tracing and various Analyses, also superimposition methods –
8. Fixed appliance typodont exercises.
    a. Training shall be imparted in one basic technique i.e. Standard Edgewise / Begg technique or its derivative / Straight wire etc., with adequate exposure to other techniques.
    b. Typodont exercise
        i. Band making
        ii. Bracket positioning and placement
        iii. Different stages in treatment appropriate to technique taught
9. Clinical photography
10. Computerized imaging
11. Preparation of surgical splints, and splints for TMJ problems.
12. Handling of equipment like vacuum forming appliances and hydro solder etc.

CLINICAL WORK:

Once the basic pre-clinical work is completed in three months, the students can take up clinical cases and the clinical training.

Each postgraduate student should start with a minimum of 50 fixed orthodontics cases and 20 removable including myofunctional cases of his/her own. Additionally he/she should handle a minimum of 25 transferred cases.

The type of cases can be as follows:

- Removable active appliances
- Class-I malocclusion with Crowding
- Class-I malocclusion with bi-maxillary protrusion
- Class-II division – 1
- Class-II division – 2
- Class-III (Orthopedic, Surgical, Orthodontic cases)
- Inter disciplinary cases
- Removable functional appliance cases like activator, Bionator, functional regulator, twin block and new developments
- Fixed functional appliances – Herbst appliance, jasper jumper etc
  - Dento-facial orthopedic appliances like head gears, rapid maxillary expansion, NiTi expander etc.,
- Appliance for arch development such as molar distalization
- Fixed mechano therapy cases (Begg, PEA, Tip edge, Edgewise, lingual)
- Retention procedures of above treated cases.

TEACHING LEARNING METHODS :

The following are the TEACHING LEARNING methods suggested for being adopted during the MDS Orthodontics and Dentofacial Orthopedics course. Each student shall take part actively in learning and teaching activities.

A. LECTURES: …… *02 Days / WEEK*

There shall be some didactic lectures in the speciality and in the allied fields. Guest lectures shall be encourage in the required areas and integrated lectures by multi-disciplinary teams on selected topics.

B. JOURNAL REVIEW:

…… *02 Days / WEEK*

All trainees, associate and staff associated with the post-graduate programme are expected to participate actively and enter relevant details in the logbook. The trainee shall make presentations from the allotted journals of selected articles.

C. SEMINARS: … *02 Days / WEEK*

All trainees are expected to participate actively and enter relevant details in logbook. The trainee shall make presentations from the allotted Topics.

D. SYMPOSIUM: It is recommended to hold symposium on topics covering multiple disciplines.

E. CLINICAL POSTINGS:

Each trainee shall work in the Dental OPD clinics on regular basis to acquire adequate professional skills and competency in managing various cases.

F. INTER-DEPARTMENTAL MEETINGS: *… 01 Day / MONTH*

To encourage integration among various specialities, there shall be interdepartmental meeting.

G. TEACHING SKILLS: *…… 02 Days / SEMESTER*

All the trainees shall be encouraged to take part in teaching programmes either in the form of lectures or group discussions.

H. DENTAL EDUCATION PROGRAMMES:

The department shall organise dental education programmes on regular basis involving other speciality and other institutions. The trainees shall also be encouraged to attend such programmes conducted outside our institute.

I. CONFERENCES / WORKSHOPS / ADVANCED COURSES:

The trainees shall be encouraged to attend conference/workshops/advanced courses and also to present at least two scientific papers and two posters at State / national level speciality and allied conferences / conventions during the training period.

J. ROTATION AND POSTING IN OTHER DEPARTMENTS:

To bring in more integration among the specialities and allied fields, each department shall workout a programme to rotate the trainees in related disciplines.

K. EVALUATION OF TRAINING

Written / practical assessment every semester. Feedback on teaching/training programmes.

L. RESEARCH WORK

Writing Thesis protocol, Collection of data, Statistical analysis, Result submission

Progress monitoring of research work every semester,

Result presentation and submission at the end of 2 & ½ yrs

Presenting paper/poster at conferences

Preparing manuscripts for documentation/ publication

Design a project for research

NOTE: The Teaching Learning Skills will be assessed using the Pre-Formed Evaluation Performa - -- attached as ANNEXURE - I to VIII

ASSESSMENT

FORMATIVE ASSESSMENT

Examination on Research Methodology & Biostatistics

- Timing: End of 2nd Semester
- Total marks: 100
- Will be considered as an internal examination
- Candidate should pass to appear in Final examination
- No marks will be added to final / summative examination

Internal Examination: (Theory and Clinical)

- Theory examination will comprise of both Class tests, MCQs.
- Clinical Examination will comprise of both chair side test.
- Timing: At the end of the 3rd, 4thand 5th semester, pre-final (2 months before final examination).
- Total marks: 100
- Candidate should pass in all examination to appear in Final examination

LOG BOOK:

The candidate should maintain a log book which has to be signed periodically by the faculty.

SUMMATIVE ASSESSMENT

A. Theory: 400 Marks

Part-I: Basic Sciences Paper - 100 Marks

Part-II: Paper-I, Paper-II & Paper-III - 300 Marks

(100 Marks for each Paper)

Written examination shall consist of Basic Sciences Paper (Part-I) of three hours duration and should be conducted at the end of First year of MDS course.

Part-II Examination will be conducted at the end of Third year of MDS course.

Part-II Examination will consist of Paper-I, Paper-II & Paper-III, each of three hours duration. Paper-I & Paper-II shall consist of two long answer questions carrying 25 marks each and five questions carrying 10 marks each. PaperIII will be on Essays. In Paper-III three Questions will be given and student has to answer any two questions. Each question carries 50 marks. Questions on recent advances may be asked in any or all the papers. Distribution of topics for each paper will be as follows:

PART-I: Applied Basic Sciences: Applied anatomy, Physiology, Dental Materials, Genetics, Pathology, Physical Anthropology, Applied Research methodology, Bio-Statistics and Applied Pharmacology.

PART-II

Paper I: Orthodontic history, Concepts of occlusion and esthetics, Child and Adult Psychology, Etiology and

classification of maloclusion, Dentofacial Anomalies, Diagnostic procedures and treatment planning in Orthodontics, Practice management in Orthodontics

Paper II : Clinical Orthodontics

Paper III : Essays (descriptive and analyzing type questions)

B. Practical / Clinical Examination : 200 Marks

Exercise No: 1 50 Marks

Functional Case :

Selection of case for functional appliance and recording of construction bite. Fabrication and delivery of the appliance the next day.

Exercise No: 2 : 50 Marks

1. III stage with auxiliary springs/Wire bending of any stage of fixed orthodontics (OR)

2. Bonding of SWA brackets and construction of suitable arch wire.

Exercise No. 3 75 Marks

Display of records of the treated cases (Minimum of 5 cases)

Exercise No: 4 25 Marks

Long case discussions

C. Viva Voce : 100 Marks

i. Viva-Voce examination: 80 marks

All examiners will conduct viva-voce conjointly on candidate's comprehension, analytical approach, expression, interpretation of data and communication skills. It includes all components of course contents. It includes presentation and discussion on dissertation also.

ii. Pedagogy Exercise: 20 marks topic be given to each candidate in the beginning of clinical examination. He/she is asked to make a presentation on the topic for 8-10 minutes.

CERTIFICATION REQUIREMENT:

1. It will be mandatory to complete all pre-clinical exercises before the candidate appears for Part –I Basic Science Examination, (First Summative assessment , at the end of First year)
2. A candidate shall be deemed to have passed the first year examination if he/she obtains not less than 50 percent of the total marks.
3. A candidate who fails to pass, or who does not present himself/herself for the examination, may be admitted to one or more subsequent examination.

   A candidate failing in the May examination can reappear in following December examination and vice versa.
4. A candidate, who fails to pass in Part – I Basic Science Examination, shall be permitted to continue studies into the second year.
5. A candidate must be passed in Part –I Basic Science Examination at least 6

months prior to appearing Part- II Examination (i.e; Final Summative Examination at the end of 3rd year).

6. A candidate shall be deemed to have passed the Final Summative Examination if he/she obtains not less than 50 % of the total marks separately in all the papers separately.

THESIS SUBMISSION

SUBMISSION OF PLAN OF PROTOCOL OF THESIS

Students registered for M.D.S. Orthodontics and Dentofacial Orthopaedics course shall have to submit the plan of thesis to the Dean's office within SIX months from the date of the commencement of the course.

SUBMISSION OF THESIS

The last date for submission of thesis of M.D.S. Orthodontics and Dentofacial Orthopaedics course students is 31 st January.

Any student who does not submit his/her thesis on the aforementioned date may be given extension up to 15 days i.e. up to 15th February with the permission of the Dean.

In case, he/she fails to submit the thesis within the extended period, i.e. by 15th February, then he/she will not be eligible to appear in the final examination.

LEAVE and STIPEND

As per the Prevailing rule of AIIMS, Kalyani.

JOURNALS RECOMMENDED FOR M.D.S. (ORTHODONTICS and DENTOFACIAL ORTHOPAEDICS **) COURSE**

Both Current and Back Volumes Preferred

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1. American Journal of Orthodontics and Dentofacial Orthodontics
2. Seminars in Orthodontics
3. Journal Of Clinical Orthodontics
4. Journal of Indian Orthodontic Society
5. Angle Orthodontist
6. European Journal Of Orthodontics
7. Orthodontics and Craniofacial Research
8. APOS Trends in Orthodontics

LIST OF BOOKS - RECOMMENDED FOR M.D.S. (ORTHODONTICS and DENTOFACIAL ORTHOPAEDICS) **CURRICULUM**

All the books are to be recent editions

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1. William Proffit, Henry Fields, Brent Larson, David Sarver. **Contemporary Orthodontics. 6th Edition**

2. Jeryl D. English, Sercan Akyalcin, Timo Peltomaki, Kate Litschel. **Mosby's Orthodontic Review,**

3. Richard Parkhouse**. Tip-Edge Orthodontics and the Plus Bracket.**

4. D. M. Sarver. Esthetic Orthodoctics & Orthodontics Surgery,

5. Richard P. McLaughlin, John C. Bennett, Hugo Trevisi **Systemized Orthodontic Treatment Mechanics,.**

6. William J Clark. **Twin Block Functional Therapy-Applications In Dentofacial Orthopaedics.**

7. Rafi Romano, Silvia Geron. **Lingual & Esthetic Orthodontics**

ANEXURE – I -- MODEL CHECKLIST
FOR EVALUATION OF JOURNAL REVIEW PRESENTATIONS.

Name of the Trainee : Date :
Name of the Faculty / Observer

Sl. No.	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Article chosen was					
2.	Extent of understanding of scope and objectives of the paper by the candidate					
3.	Whether cross-references have been consulted.					
4.	Whether other relevant publications consulted.					
5.	Ability to respond to questions on the paper / subject					
6.	Audio – Visual aids used.					
7.	Ability to defend the paper.					
8.	Clarity of presentation.					
9.	Any other observation.					
	Total Score					

ANEXURE – II -- MODEL CHECKLIST
FOR EVALUATION OF SEMINAR PRESENTATIONS.

Name of the Trainee : Date :
Name of the Faculty / Observer :

Sl. No.	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Completeness & Preparation.					
2.	Clarity of presentation.					
3.	Understanding of subject.					
4.	Whether other relevant publications consulted.					
5.	Whether cross-references have been consulted.					
6.	Ability to answer the questions.					
7.	Time scheduling.					
8.	Appropriate use of audio – visual aids.					
9.	Overall performance.					
10.	Any other observation.					
	Total Score					

ANEXURE – III -- MODEL CHECKLIST
FOR EVALUATION OF CLINICAL WORK IN OUTPATIENT DEPARTMENT

(To be completed once a month by unit head including posting in other department).

Name of the Trainee : Date :

Name of the Unit Head :

Sl. No.	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Regularity of attendance.					
2.	Punctuality.					
3.	Interaction with colleagues and supportive staff.					
4.	Maintenance of case records.					
5.	Presentation of cases.					
6.	Investigations work up.					
7.	Chair-side manners.					
8.	Rapport with patients.					
9.	Over all quality of clinical work.					
10.	Any other observation.					
	Total Score					

ANEXURE – IV -- MODEL CHECKLIST OF CLINICAL CASE PRESENTATION

Name of the Trainee : Date :

Name of the Faculty / Observer :

Sl. No.	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Completeness of history.					
2.	Whether all relevant points elicited.					
3.	Clarity of presentation					
4.	Logical order.					
5.	Mentioned all positive and negative points					
6.	Accuracy of general physical examination.					
7.	Diagnosis: Whether it follows logically from history and findings.					
8.	Investigations required. Complete list. Relevant order. Interpretation of investigations					
9.	Ability to react to questioning Whether it follows logically from history and finding					
10.	Ability to defend diagnosis					
11.	Ability to justify differential diagnosis.					
12.	Others					
	Total Score					

Please use a separate sheet for each faculty member.

ANEXURE –V--MODEL CHECKLIST FOR EVALUATION OF TEACHING SKILL

Name of the Trainee : Date :

Name of the Faculty / Observer :

Sl. No.	Items for observation during presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Communication of the purpose of the talk					
2.	Evokes audience interest in the subject					
3.	The introduction.					
4.	The sequence of ideas.					
5.	The use of practical examples and / or illustrations.					
6.	Specking style (enjoyable, monotonous, etc. specify).					
7.	Attempts audience participation.					
8.	Summary of the main points at the end.					
9.	Asks questions.					
10.	Answers questions asked by the audience.					
11.	Rapport of speaker with his audience.					
12.	Effectiveness of the talk.					
13.	Uses audio-visual aids appropriately.					
14.	Any other observation.					
	Total Score					

Please use a separate sheet for each faculty member.

ANEXURE – VI - MODEL CHECKLIST FOR DISSERTATION PRESENTATION

Name of the Trainee : Date :

Name of the Faculty / Observer :

Sl. No.	Points To Be Considered	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Interest shown in selecting topic.					
2.	Appropriate review.					
3.	Discussion with guide and other faculty.					
4.	Quality of protocol.					
5.	Preparation of proforma					
	Total Score					

ANEXURE – VII -- MODEL CONTINUOUS EVALUATION OF DISSERTATION WORK BY GUIDE / CO-GUIDE

Name of the Trainee : Date :

Name of the Faculty / Observer :

Sl. No.	Items For Observation During Presentation	Poor 0	Below Average 1	Average 2	Good 3	Very Good 4
1.	Periodic consultation with guide / coguide.					
2.	Regular collection of case material					
3.	Depth of analysis / discussion.					
4.	Quality of final output.					
5.	Others					
	Total Score					

ANEXURE – VIII -- MODEL OVERALL ASSESSMENT SHEET

Name of the Trainee : Date :

Sl. No.	Name of Faculty	Mean Score
1.		
2.		
3.		
4.		
5.		
	Total Score	

Signature of Head of the Department **Signature of Principal / Dean**

Note: The overall assessment sheet used along with the logbook shall form the basis for certifying satisfactory completion of course of study, in addition to the attendance required.

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