OCULUS
Optometry CUrriculum for Lifelong Learning through ErasmUS

Co-funded by the Erasmus+ Programme of the European Union

MANIPAL
ACADEMY of HIGHER EDUCATION
(Deemed to be University under Section 3 of the UGC Act, 1956)

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Self-Assessment
Narrative Description of Changes made to Close Gaps Identified in Preliminary Benchmark

December 2019

Introduction

Department of Optometry, Manipal College of Higher Education, MAHE, took the opportunity of the preliminary ECOO benchmark report to make significant improvements in the curriculum and to close all the gaps identified by ECOO.

The Structure of Optometry and Optometric Education in India

An estimated 456 million people of India's population of 1.12 billion people require vision correction for distance or near vision. 26 million are blind or vision impaired due to eye disease. A further 133 million people including 11 million children are blind or vision impaired simply due to refractive error.

To meet the primary eye care needs of the population it is estimated that India needs 116,000 optometrists. Currently there are approximately 9,000 four year trained optometrists and an estimated 30,000 two year trained eye care personnel.

The Indian Optometric Federation represents optometry associations, ASCO represents the schools and colleges of optometry and they have jointly established the Optometry Council of India as a self regulatory body which sets standards for education and practise.

Whilst optometry courses are recognised by the Ministry of Education and the University Grants Committee there is no legal regulatory framework. It is hoped that current discussions with the Government on the establishment of a council for allied and other health care professionals will include optometry.

This has resulted in the publication of a Model Curriculum Handbook for Optometry by the Ministry of Health and Family Welfare, Allied Health Section 2015 -16. http://mohfw.nic.in/WriteReadData/l892s/4521325636987456.pdf

This Model Curriculum sets out a recommended four year, eight semester programme leading to a degree at Bachelor level and a two year, four semester programme leading to a Masters degree.

The Model is comprehensive and the curriculum if fully implemented is of a similar standard to the European Diploma in Optometry.

The OCULUS project includes three Indian universities: Chitkara, Hyderabad and Manipal. A common feature of these are the arrangements for clinical experience in the final semesters of the courses. This takes place in hospitals and private ophthalmology clinics, which gives students excellent opportunities to experience a wide range of ocular pathology and its treatment and which equips them well for future work in hospital clinics. In these situations students do not appear to have the opportunity to undertake full routine eye examinations on individual patients. This experience is essential for those who go on to practice in community settings. In particular, it was noted that whilst a student would carry out a refraction and examine the anterior segment, the patient was then

passed to an ophthalmologist who would examine the posterior segment. This discourages students from undertaking ophthalmology as part of a routine examination on every patient.

Background

Manipal Academy of Higher Education has over 28,000 students from 57 different nations. The University has approximately 2500 faculty and almost 10000 other support and service staff, who cater to the various professional institutions in health sciences, engineering, management, communication and humanities which dot the Wi-Fi-enabled campus. Recently in 2019, MAHE is awarded with Institute of Eminence status by Ministry of Human Resource Development (MHRD), India, one among three private universities in India.

Admissions are on the basis of marks obtained in Physics, Chemistry and Biology or Mathematics in the qualifying examination. There are 120 students on the BOptom and M Optom programme with fourteen fulltime staff on the programme team.

Dr. Shonraj (PhD) was recruited in 2019 in department. His responsibilities include teaching visual perception and also develop research lab for advanced research in visual perception and neuroscience.

Course Structure

The course is part of the Department of Optometry in the Manipal College of Health Professions. The BOptom programme was commenced in 2002 and became a full time 4 year, 8 semester programme in 2010. The new model curriculum was adopted in 2016. This would mean that the first students would graduate around the time of the third year 0f the Oculus project. A Masters degree was introduced in 2008 and a partially taught PhD programme in 2013.

Students spend the first 6 semesters in the university with an internship in semesters 7 and 8. Core subjects are taught jointly with physiotherapy. Real patients are not seen until the last two semesters although screening is undertaken in outreach camps. Minimum attendance requirements are 75% for lectures and 85% for clinics. There are clinical postings in the 3rd, 4th , 5th and 6th semesters (80 hours each) and role play in the 3rd and 4th semesters. ~~The internship carries no credits or marks which seems to be based on common medical regulations. It was not clear is students could fail the internship.~~ Student attend lectures etc. for six days a week. The staff/student ratio is 1:10.

Internship is now 40 credit course, covered as 7th and 8th semester of B Optom program. End semester examination is now regulated during internship. It is conducted at the end of 7th and 8th semester. This exit examination is aimed to assess total competency of student, which is expected while working in the optometry clinic. Only upon satisfactory performance in these examination, students are awarded B. Optometry degree.

During the internship the students return at the end of each semester for assessment using OSCEs and clinical skills assessments. Three local hospital clinics are used for the internship. A standardised logbook is used for clinical records but there did not seem to be any control of the internship records. Ophthalmoscopy is not carried out routinely. During the internship students are expected to spend 50% of their time in primary eye

care, 20% on dispensing optics and 30% on 'Speciality Optometry'. It appears that ophthalmoscopy is not carried out routinely on all patients. Students visit manufacturing facilities to gain experience in prescription manufacturing.

There is an internal co-ordinator who is responsible for the internship arrangements.

The logbook is now modified. Students are now required to enter the cases they observe and perform in detailed portfolio folder. The portfolio is maintained from 3rd semester onwards till end of internship (8th semester). Students now learn and sufficiently practice ophthalmoscopy and other advance imaging techniques, the record of which can be found in the portfolio they maintain. Along with three local hospital clinics, students are now posted in independent wellness clinic and optical shop, managed by department. Students also go for internship at designated places in and outside Karnataka state, based on selection on merit. Their practice is also closely monitored by a local supervisor and by means of regular reporting of portfolios in the department.

Communication

There are year tutors but no personal tutors. There is no staff student committee. However, there is a counselling system which deals with poor performance. The faculty meets once a month. There is institutional student representation and one student on the department board of studies. Students complete a staff performance questionnaire every two years.

Students have access to on line university portal.

The University health sciences library is open every day including holidays and has 1500 study stations. There is a small optometry section. There are 13 on-line databases, 6016 journals and 1000 e-books. The whole of the Springer catalogue of 52,000 books is on-line.

Visit to Dr T M A Pai Hospital (Private)

The hospital is a private secondary care unit linked with Manipal University and Kasturb hospital. Around 120 patients are seen a day in the ophthalmology department. There are two professors, 2 assistant professors and eight ophthalmologists. The BOptom interns were largely concerned with the anterior segment with dilated fundus examination limited to abnormal conditions.

Visit to Kasturba Hospital (Private)

The ophthalmology department is a tertiary care centre and sees around 120 outpatients a day. The unit is well equipped including specular microscope, IOL Master, Ultra Sound A & B Scan, laser, pachymetry, fluorescein angiography, Humphrey and Goldmann field screeners. An eye bank has been developed and has 24 eyes at present and undertakes 20 corneal grafts a year. Most patients pay but there is some cross subsidisation. There is an innovative low cost, £4K, non mydriatic fundus camera, designed in India which is used in outreach clinics. The optometrists in this department were two year trained.

Summary of discussions

The main issues discussed were:

- The structure of the optometry curriculum
  The outcome based curriculum structure is under development and will be adopted from upcoming academic year. (2020-21)
- How clinical skills are taught
  Dedicated 1200 sq. ft. pre-clinical laboratory facility is built up. It is equipped with basic ophthalmic setup, dispensing lab, visual perception and vision therapy lab and advanced imaging instruments. Some of these instruments are brought from OCULUS project funded by Erasmus plus grant. Other instruments are co-financed by MAHE. The students of first, second and third year are given demonstrations and practice sessions in this lab, before they are allowed to take up real patients. Regular community camps and screening activities are also conducted in this lab throughout the year. This improvises students' exposure to real patients. All records of skill training is maintained in the portfolio.
- Identifying the gaps between the university curriculum and the European Diploma
  Gaps in specific subjects and topics are covered by inclusion of respective topics in curriculum. The changes have been approved by board of studies.
- Monitoring progress and record keeping
  Students are required to maintain detailed record of their skill training. The academic progress is also closely watched by the subject incharge/ class incharge faculties for each candidate. Additionally, small formative assessments are carried by all faculties and constructive feedback is given to each student.
    - Importance of a comprehensive clinical log book and audit trail
      Structured log book and portfolio is maintained by students from 2nd semester to 8th semester. The portfolios are regularly assessed by subject teachers/ clinical mentors and timely constructive feedback is given to student.
    - Ensuring that students undertake full eye examinations as a routine and are capable of independent decision making in all areas of optometric practice including optical dispensing
      Independent optical dispensing facility is started by department, in collaboration with local optician. Students are regularly posted in optical shop. The patient encounters are recorded in their logbook/ portfolio.
    - The development of greater internal clinic space for both clinical and preclinical training and experience-
      As mentioned above in 2nd point
    - The availability of modern instrumentation and equipment including a perimeter and OCT to enable students to learn at both pre-clinical and clinical levels. This is important for graduates to be able to work in independent practice and to learn how to co-manage pathology with ophthalmologists.
      The decision making is improvised by alterations in teaching. Case based learning, Journal clubs based on principles of EBP are now regularly conducted in department for each semester. Modern instruments like topography, perimetry, OCT, fundus imaging systems are available in pre-clinical/ clinical facility at MAHE. Students are given sufficient practice session on these advanced equipment.

Optometry: Manipal Academy of Higher Education, Manipal.

Benchmarking Opinion against the Knowledge Base and Competencies of the European Diploma in Optometry

This provisional opinion is based on the Panel's analysis of the documents supplied.

Red - Inadequate. Amber - Some weaknesses. Green - Satisfactory

Knowledge Base	**Knowledge base** for European Diploma competencies
Clinical/Practical competencies	**Clinical/practical** European Diploma competencies

PART A: Optical Technology

European Diploma Examination Sections	Self-Assessment Document Competency Areas	Provisional Opinion	Comments
Part A 1. Optics 2. Optical Appliances	**Subject 1: Geometrical Optics**	**Green**	
	Subject 2: Physical Optics	**Green**	
	Subject 3: Visual Optics	**Green**	(*Entoptic phenomena* not listed in BOP 106 p33)
	Subject 5: Optical Appliances	**Green**	
	Subject 6: Occupational Optics	**Green**	
	Subject 5: Optical Appliances	**Amber**	Patient numbers low. No records kept. BOP 308 p101 independent optometry clinic and dispensing facility is added. Students are posted regularly in this facility. Patient records (min 5) are maintained by each student in portfolio.
	Subject 6: Occupational Optics	**Amber**	No practical/patients. No records kept. BOP 306 p99 Industrial camps are organized throughout year.

			Students are posted regularly in these camps. Patient records (min 5) are maintained by each student in portfolio

PART B: Management of Visual Problems

European Diploma Examination Sections	Self-Assessment Document Competency Areas	Provisional Opinion	Comments
Part B 1. Refraction 2. Binocular Vision 3. Contact Lenses 4. Visual Perception	**Subject 4: Visual Perception**	**Green**	
	Subject 7: Vision and Ageing	**Green**	
	Subject 8: Refraction	**Amber**	*Near addition* not in BOP 208 p64 (or 201/ 205). 'Near addition' is now mentioned in unit plan of BOP 208
	Subject 9: Low Vision	**Amber**	*Steady eye* not in BOP 307 p88 'steady eye' in included in BOP307.
	Subject 10: Ocular Motility and Binocular Vision	**Green**	
	Subject 11: Contact Lenses	**Green**	
	Subject 12: Investigative Techniques	**Green**	
	Subject 13: Paediatric Optometry	**Green**	
	Subject 14: Refractive Surgery	**Red**	Not mentioned specifically in BOP 201, 202, 208. Only BOP 302 p96 All topics are included in BOP 202,208, 301, and 302. Separate teaching module is developed and delivered in 2019-20
	Subject 8: Refraction	**Red**	Assessment mostly written not practical. Few patients. No records kept. Assessment now includes OSCE, Mini CEx at the end of each semester. Students maintain records in

			portfolios, with predetermined min. number of records. (Please find annexure here for summary of internship batch from August 2019-Feb2020)
	Subject 9: Low Vision	Green	
	Subject 10: Ocular Motility and Binocular Vision	Red	Assessment mostly written not practical. Few real patients. Assessment now includes OSCE, Mini CEx at the end of each semester. Students maintain records of real patient encounters, in portfolios, with predetermined min. number of records.
	Subject 11: Contact Lenses	Green	
	Subject 12: Investigative Techniques	Red	All "Spotters". No real patients. No record kept. Assessment now includes OSCE, Mini CEx at the end of each semester. Students maintain records of real patient encounter, in portfolios, with predetermined min. number of records.
	Subject 13: Paediatric Optometry	Amber	Few real patients. Students maintain records of real patient encounter, in portfolios, with predetermined min. number of records.

PART C: General Health and Ocular Abnormalities

European Diploma Examination Sections	Self-Assessment Document Competency Areas	Provisional Opinion	Comments
Part C 1. Biology 2. Ocular Biology	Subject 12: Investigative Techniques	Green	
	Subject 15: Anatomy and Histology	Green	

3. Ocular Abnormality			
	Subject 16: Neuroscience	**Green**	
	Subject 17: General Physiology and Biochemistry	**Green**	
	Subject 18: Microbiology and Immunology	**Green**	
	Subject 19: General Pharmacology	**Green**	
	Subject 20: Pathology and General Medical disorders	**Green**	
	Subject 21: Epidemiology and Biostatistics	**Green**	
	Subject 22: Ocular Anatomy and Physiology	**Amber**	No detail in Module Specification BOP 113 p20. Ocular anatomy (BOP109) and physiology(BOP 102) are separate subjects
	Subject 23: Ocular Pharmacology	**Red**	BOP 210 p66 is General Pharmacology *First Aid* not mentioned Ocular pharmacology module is added (PHAR 202) Basic life support course covers first aid, mandatory for all students.
	Subject 24: Abnormal Ocular Conditions	**Green**	
	Subject 12: Investigative Techniques	**Red**	All "Spotters". No real patients. No record kept. Assessment now includes OSCE, Mini CEx at the end of each semester. Students maintain records of real patient encounter, in portfolios, with predetermined min. number of records.
	Subject 14: Refractive Surgery	**Red**	BOP 401, 402 Internship case reports. No Module specs. 3,4&5 "N/A". Assessment now includes OSCE, Mini CEx at the end of each semester. Students maintain records of real patient encounter, in portfolios, with predetermined min. number of records.
	Subject 24: Abnormal		Protocol for Internship

	Ocular Conditions	**Red**	Assessments? Records not kept. Few patients. Assessment now includes OSCE, Mini CEx at the end of each semester. Students maintain records of real patient encounter, in portfolios, with predetermined min. number of records. Protocol for internship examination is approved by board of studies, is implemented since 2018-19

Note: Good – Formal tuition in Communications BOP 114 p40.

Annexure: summary table of clinical teaching- patient exposure- internship batch (from August 2019-Feb2020)

Internship batch (AY 2019-20)								
sr no	Student's roll no	total patients in general eye OPD (ophthalmology)	total patients in refraction OPD	Total patients in CL OPD	total patients in vision perception/ binocular vision OPD	Total patients in optical / dispensing	Total patients in Low vision OPD	Grand total
1	161113048	80	40	5	4		1	130
2	161113040	70	70	10	3	2	7	162
3	161113008	150	35	5	9	14	1	214
4	161113054	67	36	7	2	4	0	116
5	161113012	75	35	8	15	4	0	137
6	131113022	145	50	7	2	10	1	215
7	161113014	170	190	7	75	180	15	637
8	161113044	80	45	1	10	25	2	163
9	161113050	80	30	3	2	7	0	122
10	161113016	160	40	6	8	20	2	236
11	161113032	2000	3500	150	300	1300	100	7350
12	161113028	60	35	8	6	2	1	112
13	161113002	10	20	36	21	0	10	97
14	161113030	2000	3400	130	280	1000	80	6890
15	161113042	256	84	9	2	3	3	357
16	161113044	80	45	1	10	25	2	163