



**M S RAMAIAH  
UNIVERSITY OF APPLIED SCIENCES**

**Programme Specifications**  
**B.Sc. (Hons) –Optometry**

**Batch 2019**

**Faculty of Life and Allied Health Sciences**

**Ramaiah University of Applied Sciences University House,  
New BEL Road, MSR Nagar, Bengaluru – 560 054 [www.msruas.ac.in](http://www.msruas.ac.in)**

<b>Programme Specifications: B.Sc. (Hons)- Optometry</b>	
<b>Offered by</b>	Faculty of life and Allied Health Sciences
<b>Programme</b>	B.Sc. (Hons)- Optometry
<b>Head of the Department</b>	Dr. Medha A. Joshi
<b>Dean Of Faculty</b>	Dr. Sundaresh D.C.

- 1. Title of the Award**  
B.Sc. (Hons) - Optometry
- 2. Modes of study**  
Full-Time
- 3. Awarding Institution / Body**  
M.S.Ramaiah University of Applied Sciences – Bengaluru, India
- 4. Joint Award** --
- 5. Teaching Institution**  
Department of Allied Health Sciences, RUAS
- 6. Date of Programme Specifications**  
  
April 2019
- 7. Date of Programme Approval by the Academic Council of MSRUAS**  
  
May 2019
- 8. Next Review Date**  
  
April 2023
- 9. Programme Approving Regulatory Body and Date of Approval** --
- 10. Programme Accrediting Body and Date of Accreditation** --
- 11. Grade Awarded by the Accreditation Body** --
- 12. Programme Accreditation Validity**  
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- 13. Programme Benchmark**

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#### 14. Rationale for the Programme

The World Health Organisation (WHO) and the International Agency for the Prevention of Blindness (IAPB) launched the global initiative VISION 2020: the Right to Sight to eliminate avoidable blindness and vision impairment. In India, uncorrected refractive error is the second most common cause of blindness and major cause of avoidable vision impairment. There is an enormous scope and need for optometrists not only in India but in other developing countries. A majority of (> 61 %) population in India are reported to wear glasses, contact lenses or other reading or visual aids. India needs more than 40,000 optometrists while there are a little above 9000 qualified professionals

The main job function of an optometrist is to provide specialized vision care. That includes conducting eye examinations and prescribing corrective lenses. Optometrists also identify eye conditions that include nearsightedness, farsightedness, lazy eye, and astigmatism.

In the process of conducting examinations, optometrists are also responsible for diagnosing any diseases or deficiencies in the eye. In addition to prescribing contact lenses and eyeglasses, optometrists can also prescribe vision aids as well as different kinds of vision therapy. Optometrists are not licensed to perform eye surgery but form an integral part of eyecare team. Optometrists work in private practices, eyewear retail stores, select department stores that provide vision care, and numerous types of health care facilities. The demand continues to grow, which has made the field of optometry a rather competitive one.

This innovative competency based curriculum is adopted from the guidelines published by Ministry of Health and Family Welfare, allied health Section 2015- 2016.

A competency-based program is a mix of skills and competencies based on individual or population needs (such as clinical knowledge, patient care, or communication approaches), which is then developed to teach relevant content across a range of courses and settings.

The curriculum is outcome based and imbibes required theoretical concepts and practical skills in the domain. By undergoing this programme, students develop critical, analytical thinking and problem solving abilities for a smooth transition from academic to real-life work environment. Students do one year internship in the hospitals for hands on skill abilities and to work in a team to enhance practical skills and problem solving abilities. The students are required to submit a well written project report as partial fulfilment for the award of the degree, which will help develop skills of documenting scientific work. In addition students are trained in communication skills and interdisciplinary topics to enhance their scope. The various new features like undergoing rigorous clinical training during studentship, research project and one year internship make the students more versatile generating wide range of opportunities including registering for Masters program. Advanced teaching and learning resources, and experience of the faculty members with their strong connections with health care industry and research organizations makes this programme unique. In order to ensure global acceptability of the graduates, the current curriculum structure is divided into smaller sections with focus on hours of studying that are converted into credit hours as per the international norms followed by various other countries

### **Integrated structure of the curriculum**

This innovative curriculum has been structured in a way such that it facilitates horizontal and vertical integration between disciplines; and bridges the gaps between both theory & practice, and between hospital-based practice and community practice.

#### **15. Programme Mission**

The purpose of the programme is creation of knowledgeable human resources to work in Government, Semi-Government, Private and Public sector owned hospitals and health care organizations and also to assume administrative positions. With further progression in education, graduates should be able to undertake teaching and research in colleges and universities as well as in scientific organizations.

#### **16. Graduate Attributes**

The courses have been designed with a focus on performance-based outcomes pertaining to specialty. The learning goals and objectives of the undergraduate education program is based on the performance expectations. They are articulated as learning goals (why we teach this) and learning objectives (what the students will learn). Using the framework, students will learn to integrate their knowledge, skills and abilities in a hands-on manner in a professional healthcare setting. These learning goals are divided into nine key areas, though the degree of required involvement may differ across various specialties:

1. Clinical care
2. Communication
3. Membership of a multidisciplinary health team
4. Ethics and accountability at all levels (clinical, professional, personal and social)
5. Commitment to professional excellence
6. Leadership and mentorship
7. Social accountability and responsibility
8. Scientific attitude and scholarship (only at higher level- PhD)
9. Lifelong learning

The aims of the curriculum is to produce optometrists who are

Technically and clinically competent

Aware of safety issues and the importance of quality assurance

Understand the theoretical basis for evidence based practice

Effective members of the multidisciplinary team

#### **17. Programme Goal**

The programme acts as a foundation degree and helps to develop critical, analytical and problem solving skills at first level. The foundation degree makes the graduates employable in health care organizations and also to assume administrative positions in various types of organizations. With additional qualifications and training help the graduates to pursue a career in academics or scientific organizations as a researcher

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## 18. Programme Objectives

At the completion of this course, the student should -

1. Be able to develop skills to provide comprehensive eye examination
  - a. To acquire knowledge on ocular structures, its functions and pathological changes
  - b. To carryout ophthalmic investigations
  - c. To impart knowledge with regard to common eye diseases
  - d. To impart knowledge on treatment modalities from the perspective of counselling
  - e. To acquire knowledge about the referral guidelines for ocular and systemic conditions
2. Be able to correct refractive error and provide spectacle prescription
3. Be able to fit, evaluate, prescribe and dispense contact lenses for refractive correction and other ocular conditions
4. Be able to assess the low vision and provide comprehensive low vision care
5. Be able to have adequate knowledge to develop skill in manufacturing of spectacle lenses, contact lenses and low vision devices.
6. Be able to do complete binocular vision assessment, manage non-strabismic binocular vision anomalies and refer condition which warrants surgery
7. Be able to assess the visual demands for various occupations and match it to the visual capabilities. Also be able to advice on eye safety wear for various occupations.
8. Have knowledge and skill for early detection of various ocular conditions and pathologies – Refractive error, Strabismus, Cataract, Diabetic retinopathy, Glaucoma etc.
9. Have knowledge regarding organizations of eye banks and preservation of ocular tissues.
10. Have knowledge on sensory substitution and other rehabilitation measures for totally visually challenged.
11. Have knowledge of counselling on visual/ocular hygiene, nutritional and environmental modifications

### Programme

The Intended Learning Outcomes (ILOs) are listed under four headings:

1. Knowledge and Understanding,
2. Cognitive Skills
3. Practical Skills and
4. Capability / Transferable Skills.

### Optometry

#### Semester 1-2

##### Knowledge and Understanding

- KU1: Explains health care delivery system in India, basic medical terminology, and computer application,
- KU2: Describes human anatomy and physiology, biochemistry including nutrition in general and also as specifically related to Optometry.
- KU3: Explains principles of health care professionalism and values
- KU4: correlates geometric optics and physical optics to the practice eof optometry.

**Cognitive Skills**

- CS1: Describes structure, function and biochemical reactions of human body
- CS2: Correlates diseases and specific health care technology
- CS3: Explains abnormal functioning and structure, various infections and effects of drugs on human body
- CS4: Selects and defends appropriate medication.

**Practical Skills**

- PS1: Demonstrates basic skills in identifying elements of blood and tissue.
- PS2: Demonstrate the ability to provide a safe and effective care to the patient
- PS3: Analyses data on medical record using appropriate software
- PS4: Applies the clinical optometry experience for managing the patients effectively.

**Transferable Skills**

- TS1: Able to communicate effectively with the team members
- TS2: Manages clinical practice of the specialty technology within available resources
- TS3: Works under various situations such as community based or hospital based practice
- TS4: Adopts various quality assurance and patient safety measures

(Semester 3-6)

**Knowledge and Understanding**

After undergoing this programme, a student will be able to:

- KU1: Explains geometric, visual and dispensing optics
- KU2: Describes the ocular diseases and its management
- KU3: Describe pharmacology of medication affecting the functioning of eye.
- KU4: Explain methods of sterilization of various equipment and medications and instruments used in Optometry.

**Cognitive Skills**

After undergoing this programme, a student will be able to:

- CS1: Compare and contrast spectacle and contact lens materials
- CS2: Follow the patients in community for their ophthalmic requirements.
- CS3: Correlate the specific geriatric and paediatric requirements with the general optometry.
- CS4: Effectively manage the patient counselling for low vision care.

**Practical Skills**

After undergoing this programme, a student will be able to:

- PS1: Demonstrate ability to maintain optometric instruments in working condition always
- PS2: Demonstrate ability to handle these instruments independently
- PS3: Applies statistical software for data mining and analysis of the research project related data
- PS4: Maintain a safe, healthy, and secure working and monitor and assure quality

**Capability / Transferable Skills**

After undergoing this programme, a student will be able to:

TS1: Follows scientific methods while prescribing and dispensing spectacles and contact lenses

TS2: Demonstrate skills and knowledge to manage the optometry practice within the hospital settings as well as private practice

TS3: Counsel the patient to take care of the low vision aids

TS4: Work effectively with others

**20. Programme Structure****SEMESTER 1**

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19AHG101A	General Anatomy	3	0	2	4	100
2	19AHG102A	General Physiology	2	0	2	3	100
3	19AHG103A	Health Care Delivery Systems of India	2	0	0	2	50
4	19AHG104A	Communication Skills for Health care Professionals -1	0	2	0	2	100
5	19AHG105A	Medical Terminology and Record Keeping	3	0	0	3	100
6	19AHG106A	Computer Applications	0	0	4	2	50
7	19AHG109A	Nutrition	2	0	0	2	50
8	19OPT101A	Geometrical Optics 1	3	0	2	4	100
<b>Total</b>			<b>15</b>	<b>2</b>	<b>10</b>	<b>22</b>	<b>650</b>
<b>Total number of contact hours per week</b>			<b>27 hours</b>				

**SEMESTER 2**

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19AHG111A	General Biochemistry	2	0	2	3	100
2	19AHG112A	General Pharmacology	2	1	0	3	100
3	19AHG113A	Health care Professionalism and Values	2	0	0	2	50
4	19OPT111A	Ocular Anatomy	2	0	2	3	100
5	19OPT112A	Ocular Physiology	2	0	2	3	100
6	19OPT113A	Physical Optics	3	0	2	4	100
7	19OPT114A	Directed Clinical Education 1	0	0	8	4	100
<b>Total</b>			<b>13</b>	<b>1</b>	<b>16</b>	<b>22</b>	<b>650</b>
<b>Total number of contact hours per week</b>			<b>30 hours</b>				

**SEMESTER 3**

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19OPT201A	Ocular Biochemistry	2	0	2	3	100
2	19OPT202A	Geometric Optics II	3	0	2	4	100
3	19OPT203A	General and Ocular	2	1	0	3	100
4	19OPT204A	Visual Optics I	2	0	0	2	50
5	19OPT205A	Optometric Optics I	3	0	0	3	100
6	19OPT206A	Optometric Instruments	2	0	0	2	50
7	19OPT207A	Ocular Diseases I	2	0	0	2	100
9	19OPT210A	Directed Clinical Education 2	0	0	6	3	50
<b>Total</b>			<b>16</b>	<b>1</b>	<b>10</b>	<b>22</b>	<b>650</b>
<b>Total number of contact hours per week</b>			<b>27 hours</b>				



**SEMESTER 4**

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19OPT211A	Clinical Examination of	0	1	2	2	50
2	19OPT212A	Optometric Optics –II	2	0	2	3	100
3	19OPT213A	Visual Optics II	1	0	2	2	50
4	19OPT214A	Ocular Diseases II	2	0	0	2	100
5	19OPT215A	General and Ocular	2	0	2	3	100
6	19OPT216A	Ocular Pharmacology	2	0	0	2	50
7	19AHG211A	Patient Safety and Quality Assurance	3	0	2	4	150
8	19OPT220A	Directed Clinical Education 3	0	0	8	4	100
<b>Total</b>			<b>12</b>	<b>1</b>	<b>18</b>	<b>22</b>	<b>700</b>
<b>Total number of contact hours per week</b>			<b>31 hours</b>				

**SEMESTER 5**

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19OPT301A	Contact lens I	2	0	2	3	100
2	19OPT302A	Low Visual Care	1	0	2	2	50
3	19OPT303A	Geriatric and Pediatric Optometry	1	0	2	2	100
4	19OPT304A	Binocular Vision I	1	0	2	2	50
5	19OPT305A	Systemic Diseases	2	0	0	2	50
6	19AHG301A	Medical Psychology	2	0	0	2	50
7	19AHG302A	Constitution of India, Medical law and Ethics	2	0	0	2	50
8	19AHG303A	Environmental Science	2	0	0	2	50
9	19OEEXXX	Open Elective I	0	0	0	2	50
10	19OPT310A	Directed Clinical Education 4	0	0	6	3	50
<b>Total</b>			<b>13</b>	<b>0</b>	<b>14</b>	<b>22</b>	<b>600</b>
<b>Total number of contact hours per week</b>			<b>27 hours</b>				

**SEMESTER 6**

Sl.No.	Code	Course Title	Theory (h/W/S)	Tutorials (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19OPT311A	Contact lens II	2	0	2	3	100
2	19OPT312A	Binocular Vision II	2	0	2	3	100
3	19OPT313A	Public Health and Community Optometry	2	0	2	3	100
4	19OPT314A	Occupational Optometry	2	0	0	2	50
5	19OPT315A	Practice Management	2	0	0	2	50
6	19AHG310A	Research Methodology and Biostatistics	2	0	0	2	50
7	19AHG311A	Communication Skills for Health Care Professionals-2	2	0	0	2	50
8	19OEEXXX	Open Electives II	0	0	0	2	50
9	19OPT320A	Directed Clinical Education 5	0	0	6	3	50
<b>Total</b>			<b>14</b>	<b>0</b>	<b>12</b>	<b>22</b>	<b>600</b>
<b>Total number of contact hours per week</b>			<b>26 hours</b>				

**SEMESTER 7 and SEMESTER 8**

S.No.	Code	Course Title	Theory (h/W/S)	Practical (h/W/S)	Total Credits	Max. Marks
1	19OPT401A	Research Project		8	4	50
	19OPT402A	OTT Internship		40	20	100
2	19OPT410A	OTT Internship		48	24	100
Total				96	48	250
<b>Total number of contact hours per week</b>						

**Open Elective Courses:** students are encouraged to register for the Open Elective Courses offered by the other Faculty relevant to the Allied Health Sciences and also from other MOOC platforms.

**19. Programme Delivery**

As per Time Table

**20. Teaching and Learning Methods**

The module delivery comprises of a combination of few or all of the following:

1. Face to face lectures using audio-visuals
2. Workshops-group discussions, debates, presentations
3. Demonstrations
4. Guest lectures
5. Laboratory-work/Field work/Workshop

6. Hospital postings
7. Seminars
8. Group Exercises
9. Project Work

## 21. Learning methodologies

With a focus on self-directed learning, the curriculum will include a foundation course that focuses on communication, basic clinical skills and professionalism; and will incorporate clinical training from the first year itself. It is envisaged that the AHPS should have sufficient clinical exposure integrated with the learning of basic and laboratory sciences. There is an emphasis on the introduction of case scenarios for classroom discussion/case-based learning.

It is well documented in the literature that teaching and learning of clinical skills occur at the patient's bedside or other clinical areas such as laboratories, augmented by didactic teaching in classrooms and lecture theatres. In addition to keeping up with the pace of technological advancement, there has been a paradigm shift to outcome-based education with the adoption of effective assessment patterns. Our institute has instituted clinical skill centres, laboratories and high-fidelity simulation laboratories to enhance the practice and training for allied and healthcare students and professionals. The use of simulators addresses many issues such as suboptimal use of resources and equipment, by adequately training the manpower on newer technologies, limitations for imparting practical training in real-life scenarios, and ineffective skills assessment methods. The table below lists various modes of teaching and learning opportunities that harness advanced tools and technologies.

## 22. Assessment and Grading

1. Every course will be assessed for 200/150/ 100/50 Marks
2. The weightage of marks for components are as follows:
  - i) Course without Laboratory
 

Theory (Core Course)	:100 marks (60% for CE and 40% for SEE)
Theory (Non-core Course)	: 50 marks (30 for CE and 20 for SEE)
  - ii) Course with Laboratory
 

Theory	: 70% Marks (50% for CE and 20% for SEE)
Lab	: 30% Marks (20% CE and 10% for SEE)
  - iii) Laboratory/ Clinical (only) : 50/100 Marks (CE)
3. A minimum of overall 40% is required for a pass in the courses and attendance in SEE component is compulsory
4. The total marks for each course is given in the programme structure - section 20
5. Other flexibilities (exceptions) as per the programme regulations

Other flexibilities (exceptions) as per the programme regulations\*\* Clinical examination includes

1. Objective Structured Clinical Examination (OSCE), Objective Structured Practical Examination (OSPE), Objective Structured Long Examination Record (OSLER)
2. Mini Case Evaluation Exercise (CEX)
3. Case-based discussion (CBD)
4. Direct observation of procedures (DOPs)
5. Portfolio
6. Multi-source feedback
7. Patient satisfaction questionnaire

**23. Attendance**

A minimum of 85% attendance is compulsory to appear for semester end examinations. Marks will be awarded to the student with more than 75% attendance as a part of Continuous Evaluation. The marks will be awarded as follows:

75-80% =2 marks

81-85%= 4 marks

86-90%= 6 marks

91-95%= 8 marks

96-100%= 10 marks

< 75%= 0

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**24. Award of Class**

As per the Academic Regulations for B.Sc. (Hons) - Operation Theatre Technology Programme

**25. Student Support for Learning**

Students are given the following support:

1. Course notes
2. Reference books in the library
3. Magazines and Journals
4. Internet facility
5. Computing facility
6. Laboratory facility
7. Workshop facility
8. Staff support
9. Lounges for discussions
10. Any other support that enhances their learning

**26. Quality Control Measures**

Following are the Quality Control Measures:

1. Review of question papers and assignment questions
2. Student Feedback
3. Opportunities for the students to see their assessed work
4. Staff Student Consultative Committee meetings
5. Student exit feedback
6. Subject Assessment Board (SAB)
7. Programme Assessment Board (PAB)

**28. Curriculum Map**

Course Code	Intended Learning Outcomes											
	Knowledge and Understanding				Cognitive (Thinking) Skills (Critical,Analytical,				Practical skills			
	KU1	KU2	KU3	KU4	CS1	CS2	CS3	CS4	PS1	PS2	PS3	PS4
19AHG101A		✓										
19AHG102A		✓										
19AHG103A	✓											
19OPT101A				✓								
19AHG104A		✓										
19AHG105A	✓											
19AHG106A	✓											
19OPT102A		✓	✓									
19AHG111A		✓										
19OPT111A		✓										
19OPT112A		✓										
19OPT113A			✓									
19AHG112A								✓				
19AHG113A			✓									
19OPT114A										✓		
19OPT201A					✓							
19OPT202A				✓								
19OPT203A						✓						
19OPT204A	✓											
19OPT205A										✓		
19OPT206A										✓		
19OPT207A		✓										
19OPT208A												
19OPT211A				✓								
19OPT212A				✓								
19OPT213A	✓											
19OPT214A		✓										
19OPT215A		✓										
19OPT216A								✓				
19AHG201A										✓		
19OPT217A												
19OPT301A							✓					
19OPT302A							✓					
19OPT303A							✓					
19OPT304A								✓				
19OPT305A		✓										
19OEEXXX												
19AHG301A												
19AHG302A												

19AHG303A												
19OPT306A												
19OPT311A					✓							
19OPT312A					✓							
19OPT313A						✓						
19OPT314A						✓						
19OEEEXXX												
19AHG310A												
19OPT315A												
19AHG311A												
19OPT316A												

29. / Transferable Skills Map

Course Code	Skills									
	GK	SL	WC	OC	P	B	IM	PM	L	
19AHG101A		✓	✓							
19AHG102A		✓	✓							
19AHG103A	✓	✓	✓	✓						
19OPT101A		✓	✓		✓					
19AHG104A	✓		✓	✓	✓					
19AHG105A	✓	✓	✓							
19AHG106A	✓						✓	✓		
19OPT102A		✓	✓							
19AHG111A	✓	✓	✓							
19OPT111A	✓	✓	✓							
19OPT112A	✓	✓	✓							
19OPT113A		✓			✓		✓			
19AHG112A	✓	✓	✓							
19AHG113A					✓	✓				✓
19OPT114A	✓	✓		✓		✓		✓		
19OPT201A		✓✓	✓	✓	✓	✓	✓	✓	✓	✓
19OPT202A	✓	✓	✓					✓		
19OPT203A	✓	✓	✓		✓		✓			
19OPT204A	✓	✓	✓				✓			
19OPT205A	✓	✓	✓				✓			
19OPT206A	✓	✓	✓							
19OPT207A	✓	✓	✓		✓					
19OPT208A	✓	✓		✓		✓		✓		
19OPT211A		✓	✓					✓	✓	
19OPT212A	✓	✓	✓				✓			
19OPT213A	✓	✓	✓				✓			
19OPT214A	✓	✓	✓				✓			
19OPT215A	✓	✓	✓				✓			
19OPT216A	✓	✓	✓				✓			
19AHG201A	✓	✓	✓		✓	✓				✓
19OPT217A	✓	✓		✓		✓		✓		
19OPT301A	✓	✓	✓		✓					
19OPT302A	✓	✓	✓		✓					
19OPT303A	✓	✓	✓		✓					
19OPT304A	✓	✓	✓		✓					
19OPT305A	✓	✓	✓		✓					✓
19OEEXXX										
19AHG301A	✓	✓	✓			✓				
19AHG302A										
19AHG303A		✓	✓							
19OPT306A	✓	✓		✓		✓		✓		
19OPT311A	✓	✓	✓		✓					
19OPT312A	✓	✓	✓		✓					
19OPT313A	✓	✓	✓		✓					
19OPT314A	✓	✓	✓		✓					
19OEEXXX										
19AHG310A	✓	✓	✓		✓					✓
19OPT315A		✓	✓		✓	✓				✓
19AHG311A	✓	✓	✓	✓	✓	✓		✓		✓
19OPT316A	✓	✓		✓		✓		✓		

GK:GroupWork; SL: Self Learning;WC: WrittenCommunication;OC:OralCommunication  
P:Presentation;B:Behavioural;IM:InformationManagement; PM:PersonalManagement L: Leadership

**27. Co-curricular Activities**

Students are encouraged to take part in co-curricular activities like seminars, conferences, symposium, paper writing, attending industry exhibitions, project competitions and related activities to enhance their knowledge and network.

**28. Cultural and Literary Activities**

To remind and ignite the creative endeavours annual cultural festivals held and the students are made to plan and organize the activities.

**29. Sports and Athletics**

Students are encouraged to develop a habit of taking part in outdoor and indoor games on regular basis.