

**Guidelines**  
**For**  
**Competency Based Training Programme**  
**In**  
**DrNB Clinical Immunology & Rheumatology**  
**2021**



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## **I. INTRODUCTION**

A broad experience in general (internal) medicine is considered essential for the practice of clinical Immunology & Rheumatology, hence students enrolling for this course should have a strong background of Internal Medicine.

During the course the individual should have the experience of continuing care for Rheumatology patients on in-patient and outpatient basis.

During this time, the trainee should acquire the knowledge, experience and skills detailed in the syllabus and record the training record.

### **1. DESCRIPTION OF THE DISCIPLINE**

Clinical Immunology & Rheumatology incorporates the investigation, diagnosis, management and rehabilitation of patients with disorders of the musculoskeletal system i.e. the locomotor apparatus, bone and soft connective tissues.

The rheumatic disorders thus include diverse conditions such as inflammatory arthritis, autoimmune rheumatic disorders, soft tissue conditions including injuries, osteoarthritis, spinal pain and other chronic pain syndromes and metabolic bone disease. Rheumatology requires interdisciplinary knowledge and awareness of new developments in internal medicine, immunology, orthopedics, neurology/pain management, rehabilitation, psychiatry, nursing and professions allied to medicine.



## II. AIMS OF THE POST-GRADUATE TRAINING

Post graduate training, leading to recognition as a specialist, should furnish the doctor with knowledge and skills which will enable them to become competent in the field of rheumatology. The curriculum will enable trainees the opportunity to be competent in the:

- i. Establishment of a differential diagnosis for patients presenting with clinical features of musculoskeletal conditions by appropriate use of history, clinical examination and investigation
- ii. Performance of the core investigations required for all physicians practicing rheumatology
- iii. Development of management plans for the "whole patient" and have sound knowledge of the appropriate treatments including health promotion, disease prevention and long-term management plans
- iv. Communication of the diagnosis and management options with the patient and other member soft haemulid sciplinary team.
- v. Application of sufficient knowledge and skill in diagnosis and management to ensure safe independent practice.
- vi. Provision of effective team working and leadership skills
- vii. Application of knowledge of the appropriate basic sciences relevant to rheumatology
- viii. Management of time and other resources to the benefit of their patients and colleagues
- ix. Facilitation of effective learning by other clinical and allied staff.
- x. Maintenance of professional standards through continuing development and learning
- xi. Critical appraisal and analysis of clinical research methodology and result





### III. PROGRAMME GOAL

The goal of the DrNB program is to provide advanced training in Clinical Immunology & Rheumatology to produce competent sub-specialists who can provide clinical care of the highest order to patients and serve as future teachers, trainers and researchers in the field.

**1. PROGRAMME OBJECTIVES:** At the end of the course, the student should be able to:

- i. Clinically diagnose, investigate and manage a whole spectrum of non-immune mediated and immune-mediated rheumatologically disorders
- ii. Practically perform and interpret the common laboratory techniques used in a Rheumatology Laboratory
- iii. Plan and undertake research in Rheumatology in the clinic, laboratory and community
- iv. Competent to understand and critically analyze the new literature in the field of Rheumatology
- v. Teach the subject to undergraduates and postgraduates in Medicine and Pediatrics.

**2. COMPETENCIES:**

**As professionals, rheumatologists must:**

- i. Demonstrate a commitment to their patients, profession, and society through ethical practice;
- ii. Demonstrate a commitment to their patients, profession and society through participation in profession-led regulation;
- iii. Demonstrate a commitment to physician health and sustainable practice, and specific training requirements.
- iv. These competencies will develop and mature through continuing professional development. Training programmes must, however, establish the appropriate standards and reinforce the attitude that will lead to lifelong commitment to the principles.

**At the completion of training rheumatologists must be able to:**

- i. Demonstrate a commitment to their patients, profession, and society through ethical practice
- ii. Exhibit appropriate professional behavior in practice, including honesty, integrity, commitment, compassion, respect and altruism



- iii. Demonstrate a commitment to delivering the highest quality care and maintenance of competence
- iv. Demonstrate responsiveness to the needs and interests of patients that supercedes self-interest
- v. Demonstrate the ability to provide autonomy to their patients to decide upon treatment once all treatment options and risks have been outlined for them. Provide and obtain key elements of informed consent in an understandable manner for therapeutic interventions and clinical research endeavors
- vi. Recognize and appropriately respond to ethical issues encountered in practice

### 3. PROFESSIONAL ROLE

- i. Appropriately manage conflict of interest, with special focus on relationships with the pharmaceutical industry
- ii. Recognize the principles and limits of patients' confidentiality as defined by professional practices standards and the law
- iii. Maintain appropriate relation with the patients
- iv. Demonstrate a commitment to their patients, profession and society through participation in profession-led regulation
- v. Appreciate the professional, legal and ethical codes of practice
- vi. Fulfil the regulatory and legal obligations required of current practice
- vii. Demonstrate accountability to professional regulatory bodies
- viii. Recognize and respond to other's unprofessional behavior in practice
- ix. Participate in peer review and audit
- x. Demonstrate a commitment to physician health and sustainable practice:
- xi. Balance personal and professional priorities to ensure personal health and sustainable practice
- xii. Strive to heighten personal and professional awareness and insight
- xiii. Recognize other professionals in need and respond appropriately



#### IV. TEACHING AND TRAINING ACTIVITIES

The fundamental components of the teaching programme:

##### **Local departmental level**

- i. Case presentations & discussion - At least 12 cases per student per year.
- ii. Seminar - at least 4 seminars per student per year.
- iii. Journal club - At least 4 journal clubs per student per year.
- iv. Grand round presentation (by rotation departments and subspecialties) - once a week.
- v. Faculty lecture teaching - Once a month.
- vi. Clinical Audit - Once a Month. (Clinical audit including mortality review, prescription audit, discharge summary, patients' data).
- vii. A poster and have one oral presentation at least once during their training period in a recognized conference.

##### **National**

A national level teaching program is launched with one-hour webinar per week. Currently, in a month one seminar, one journal club, one faculty lecture, one case discussion, and a clinical topic is done. All trainees are provided link to the webinar and a faculty moderates the activity.

The ward rounds should include bedside sessions (file rounds & documentation of case history and examination, progress notes, round discussions, investigations and management plan), and interesting and difficult case unit discussions.

The training program would focus on knowledge, skills and attitudes (behavior), all essential components of education. It is being divided into theoretical, clinical and practical in all aspects of the delivery of their facilitative care, including methodology of research and teaching.

- i. **Theoretical:** The theoretical knowledge would be imparted to the candidates through discussions, journal clubs, symposia and seminars. The students are exposed to recent advances through discussions in journal clubs. These are considered necessary in view of an inadequate exposure to the subject in the undergraduate curriculum.





- ii. **Clinical:** The trainee would be attached to a faculty member to be able to pick up methods of history taking, examination, prescription writing and management in rehabilitation practice.
- iii. **Bedside:** The trainee would work up cases, learn management of cases by discussion with faculty of the department.
- iv. **Journal Clubs:** A list of suggested Journals is given towards the end of this document. The candidate would summarize and discuss the scientific article critically. A faculty member will suggest the article and moderate the discussion, with participation by other faculty members and resident doctors. The contributions made by the article in furtherance of the scientific knowledge and limitations, if any, will be highlighted.
- v. **Research:** The student would carry out their search project and write a thesis dissertation in accordance with NBE guidelines. He/ she would also be given exposure to partake in the research projects going on in the departments to learn their planning, methodology and execution so as to learn various aspects of research.
- vi. **Seminar:** Trainees would be required to present topics based on the curriculum in a period of three years to the combined class of teachers and students. A free discussion would be encouraged in these seminars. The topics of the seminar would be given to the trainees with the dates for presentation.





## **V. SYLLABUS**

- 1. Structure and function of bone, Joints, and connective tissue:**
- 2. Biology of the normal joint and articular structures:**
  - i. Hands
  - ii. Wrists
  - iii. Elbows
  - iv. Shoulders
  - v. Neck
  - vi. Low Back
  - vii. Spines
  - viii. Hip joint and Pelvic Girdle
  - ix. Knees
  - x. Ankles-feet
  - xi. Synovium, Cartilage, Bone and Chondrocytes
- 3. Normal and Pathological synovial tissue and cartilage**
- 4. Connective tissue:**
  - i. Collagen-collagenases
  - ii. Proteoglycans-mediators derived from polyunsaturated fatty acids
  - iii. Prostaglandins
  - iv. Thromboxane's
  - v. Leukotrienes
  - vi. Mediators of acute and chronic inflammation
  - vii. Vascular endothelium
  - viii. Interleukins
  - ix. Free radicals
  - x. Nitric oxide
  - xi. Apoptosis.
- 5. Formation and resorption of Bone- Bone as a tissue and an organ.**
- 6. Muscle: Anatomy - contractile proteins - ultrastructure of the muscle fibre – neuro muscular junction-physiology of motor unit-excitation-contraction**
- 7. Coupling - biochemistry of contraction- Muscle energy metabolism — pharmacology of the motor unit.**
- 8. Nerve: Neuropathies of special interest in Rheumatology – laboratory investigations –pain bath ways.**
- 9. Synovial physiology**
- 10. Collagen in normal and diseased connective tissue**
- 11. Articular cartilage, Chondrocyte structure and function**
- 12. Basics of immunology**



**13. Pharmacology of drugs in rheumatology practice**

**14. Broad issues in the approach to Rheumatic Disease:**

- i. Principles of Epidemiology in Rheumatic Disease
- ii. Economic Burden of Rheumatic Diseases
- iii. Clinical Trial Design and Analysis
- iv. Assessment of Health Outcomes
- v. Design of clinical trials in rheumatology
- vi. Comorbidities of rheumatic disease
- vii. Social aspects(work)
- viii. Registries
- ix. Outcomes of pediatric rheumatic disease
- x. Basics of genetics
- xi. Immunology
- xii. Environment
- xiii. Epigenetics
- xiv. Genetics of rheumatoid arthritis
- xv. Genetics of spondyloar thropathies
- xvi. Genetics of connective tissue diseases (rheumatoid arthritis, SLE, Scleroderma, Sjogren's syndrome, Inflammatory muscle diseases, mixed connective tissue disease)
- xvii. Genetics of juvenile rheumatic diseases
- xviii. Genetics of osteoarthritis
- xix. Genetics of Gout and other crystal arthritis
- xx. Genetics of chronic musculoskeletal pain
- xxi. Biologic Markers
- xxii. Occupational and Recreational Musculoskeletal Disorders
- xxiii. Cardio vascular Risk in Rheumatic Disease
- xxiv. Cancer Risk in Rheumatic Diseases

**15. Rheumatic diseases of childhood:**

- i. Etiology and Pathogenesis of Juvenile Idiopathic Arthritis
- ii. Treatment of Juvenile Idiopathic Arthritis
- iii. Pediatric Systemic Lupus Erythematosus, Dermatomyositis, Scleroderma and Vasculitis

**16. Medical Orthopaedics and Rehabilitation:**

- i. Sports Medicine
- ii. Entrapment neuropathies
- iii. Physiotherapy
- iv. Occupational therapy
- v. Health outcome assessment
- vi. Rehabilitation of patients with rheumatic diseases

**17. Other areas in which knowledge is to be acquired:**

- i. Biostatistics, Research Methodology and Clinical Epidemiology
- ii. Ethics
- iii. Medico legal aspects relevant to the discipline
- iv. Health Policy issues as may be applicable to the discipline



## A. Rheumatological Diseases

### 1. Regional pain syndromes:

- i. Spinal pain
- ii. Intervertebral disc disorders
- iii. Spinal canal or foraminal stenosis & related syndromes
- iv. Limb pain syndromes (e.g. rotator cuff disease, epicondylitis & other soft tissue conditions, nonspecific)
- v. Limb pain, plantar fasciitis, bursitis, algodystrophy etc)
- vi. Chest wall pain syndromes
  - a. Fibromyalgia and related somatoform disorders
  - b. Benign joint hypermobility
  - c. specific to childhood – e.g. nocturnal limb pain, Osgood-Schlatter's, Perthes etc

### 2. Osteoarthritis and related conditions:

- i. Osteoarthritis
- ii. DISH
- iii. Neuropathic arthritis
- iv. Crystal associated arthropathy—urate, CPPD, basic calcium phosphate, oxalate

### 3. Spondylarthropathy

- i. Ankylosing spondylitis
- ii. Enteropathic arthropathies
- iii. Psoriatic arthritis
- iv. Reactive arthritis
- v. Whipple's disease

### 4. Autoimmune rheumatic disease

- i. Rheumatoid arthritis
- ii. Systemic lupus erythematosus and related overlap syndromes
- iii. Systemic sclerosis, Sjogrens syndrome
- iv. Inflammatory muscle disease
- v. Vasculitides, antiphospholipid syndrome, Behcet's disease

### 5. Metabolic, endocrine and other disorders

- i. Osteoporosis
- ii. Rickets and osteomalacia
- iii. Bone & joint dysplasias
- iv. Renal bone disease
- v. Endocrine disorders affecting bone, joint or muscle (e.g. thyroid, pituitary, parathyroid)
- vi. Metabolic disorders affecting joints (e.g. alkaptonuria, haemochromatosis etc.)
- vii. Heritable collagen disorders
- viii. Haemoglobinopathies
- ix. Hemophilia and other disorders of hemostasis





- x. Regional disorders— Paget's disease, HPOA, osteonecrosis, Perthe's disease
- xi. Osteochondritis dissecans, transient regional osteoporosis

**6. Neoplastic disease**

- i. Primary and secondary neoplastic conditions of connective tissue
- ii. Pigmented villonodular synovitis
- iii. Paraneoplastic musculoskeletal syndromes

**7. Infection and arthritis:**

- i. Septic bone and joint lesions
- ii. Lyme disease
- iii. Mycobacterial, fungal & parasitic arthropathies
- iv. Viral arthritis
- v. AIDS
- vi. Post-infectious rheumatologically conditions (e.g. rheumatic fever, post-meningococcal arthritis)

**8. Miscellaneous:**

- i. Sarcoidosis, Eosinophilic fasciitis, Familial Mediterranean Fever, Relapsing polychondritis
- ii. Hypogammaglobulinaemia & arthritis, Amyloidosis, Sweets syndrome (neutrophilic dermatoses)
- iii. Primary immunodeficiency
- iv. Auto-inflammatory syndromes
- v. IgG4-related disease





## VI. CLINICAL SKILLS & ATTITUDES

The trainee will learn to:

### A. Do a proper History taking & clinical examination: which will include:

**History** – To be able to elicit and correctly interpret a history of the presenting symptoms of rheumatic disease i.e. pain, stiffness, weakness, loss of function & non-articular manifestations the disability and handicap caused by rheumatic disease the psychosocial problems associated with rheumatic disease other general medical problems.

**Examination** - To be able to undertake a physical examination as follows and identify.

- i. **Normal anatomy and function:** of the surface anatomical features of the shoulder girdle, elbow, hand & wrist, hip/pelvis, knee, ankle/foot, and spine; the normal range of movement (active and passive) of these joints and the actions of major muscle/tendons acting on these joints.
- ii. **Abnormal anatomy and function:** The trainee should be able to identify general features of musculoskeletal pathology:  
By inspection—swelling, erythema, muscle wasting or deformity  
By palpation—tenderness of articular or specific per articular structures, increased warmth, to distinguish bone from soft tissue swelling and identify fluctuance.  
By movement— abnormalities of active and passive movements, instability, the presence of ten don lesions by applying appropriate stress tests, and muscle wasting/ weakness to use these signs to identify inflammation or structural damage of limb joints, spinal joints, soft tissues (muscles, tendons, entheses, bursae), to identify the clinical signs associated with the extra-articular & systemic features, and to identify the general medical complications of rheumatic disease. In particular, the trainee should be able to examine for

#### 1. Shoulder pathology:

- i. Rotator cuff lesions
- ii. Glenohumeral /capsular pathology
- iii. Muscle wasting, proximal myopathy(deltoid)
- iv. S/C joint pathology-OA, synovitis
- v. A/C joint pathology-OA, synovitis
- vi. Shoulder pain due to pain referred from viscera or neck

#### 2. Elbow pathology:

- i. Olecranon bursitis
- ii. Elbow joint pathology
- iii. Radio-ulnar joint pathology
- iv. Medial or lateral epicondylitis



### 3. Hand & wrist pathology:

- i. Radiocarpal joint pathology
- ii. Inf. radio-ulnar joint pathology
- iii. 1st CMC, MCP or IP joint pathology
- iv. Hand deformities
- v. Muscle wasting
- vi. Flexor or extensor tenosynovitis or tendon nodules
- vii. Rupture or attenuation of flexor or extensor tendons of fingers or thumb
- viii. De Quervain's tenovaginitis
- ix. Carpal tunnel syndrome

### 4. Hip/pelvic pathology:

- i. Trochanteric, iliopsoas, gluteal bursitis
- ii. Hip joint pathology
- iii. Real & apparent leg length inequality
- iv. SI joint pathology
- v. Muscle wasting, proximal myopathy, Trendelenburg sign
- vi. Deformities of the hip, Thomas' test
- vii. Pathology of symphysis pubis
- viii. Pathology of pelvis-fractures
- ix. Hip pain due to pain referred from lumbar region
- x. Lesions of tendons and entheses

### 5. Knee pathology:

- i. Knee joint pathology, including internal derangements
- ii. Deformities
- iii. Muscle wasting, myopathy
- iv. Prepatellar, anserine bursitis
- v. Popliteal cyst
- vi. Damage to collateral ligaments
- vii. Knee pain due to pain referred from hip or lumbar spine
- viii. Lesions of tendons and entheses

### 6. Ankle & foot pathology:

- i. Ankle (tibiotalar) pathology
- ii. Subtalar/Midtarsal joint pathology
- iii. MTP & IP joint pathology
- iv. Lesions of the Achilles tendon, entheses and retrocalcaneal bursa
- v. Deformities of the ankle and foot
- vi. Foot pain due to pain referred from lumbar spine
- vii. Plantar fasciitis
- viii. Tenosynovitis of tib post and peroneal tendons
- ix. Rupture of tib posterior or Achilles tendon
- x. Lesions of bone (e.g. stress fracture)



## 7. Spinal pathology:

- i. Cervical spine pathology
- ii. Thoracic spine pathology
- iii. Lumbar spine pathology
- iv. Spinal nerve root entrapment syndromes
- v. Spinal deformities

## 8. Extra-articular pathology:

- i. Raynaud's phenomenon
- ii. Vasculitis skin lesions
- iii. Rheumatoid nodules
- iv. Heberdens & Bouchard's nodes
- v. Rash – psoriasis, pustular psoriasis, onycholysis, balanitis, lupus rashes, erythema anodosum
- vi. Scleritis, episcleritis, conjunctivitis, iritis
- vii. Sclerodactyly
- viii. Tophi
- ix. Other medical complications of rheumatic disease affecting internal organs
- x. The normal musculoskeletal system and its' variations eg at
- xi. Extremes of age
- xii. The clinical signs associated with-
- xiii. Inflammation or structural damage of joints & perarticular
- xiv. Structures (muscles, tendons, entheses, bursae and bone)
- xv. Non-articular, systemic and other features of rheumatic disease
- xvi. General medical complications of rheumatic disease
- xvii. Diffuse or regional pain disorders or somatization disorders

**B. Make a differential diagnosis –** To be able to use the clinical findings to formulate a differential diagnosis and plan of investigation for patients presenting with –

- i. Monoarthritis
- ii. Oligoarthritis
- iii. Polyarthritis
- iv. Axial arthritis
- v. Multi system disorders
- vi. Muscle weakness
- vii. Regional limb & spinal musculoskeletal pain disorders
- viii. Unexplained musculoskeletal pain
- ix. Rheumatological emergencies

**C. Principle and Interpretation of Laboratory Test –** To know the indications for and limitations of the laboratory and imaging techniques used in the diagnosis and management of rheumatic diseases. To be able, in the light of the clinical assessment, to select and interpret the most appropriate–

- i. Laboratory investigations
- ii. Hematology
- iii. Biochemistry
- iv. Immunology
- v. Histopathology





- vi. Bacteriology
- vii. Qualitative imaging techniques
- viii. Plain radiography
- ix. CT
- x. MRI
- xi. Radio isotope scanning
- xii. Quantitative techniques for assessing bone density
- xiii. DXA
- xiv. Ultrasound
- xv. Polarizing light microscopy
- xvi. Nail fold capillaroscopy

The Candidate will be required to perform some of these tests himself/herself

**D. Learn management & communication** – To be able to communicate, explain and discuss with the patient the diagnosis, the need for further investigations the evidence-based management options, their risks and benefits and need for clinical monitoring; the need for orthopedic/surgical intervention, and the main risks and benefits; the patient's View on causation, management and the risks and benefits of complementary or non-conventional approaches.

To be able to identify the need for - paramedical intervention, and aids to assist self-care, mobility or driving intervention by other relevant specialists including the neurologist, neurosurgeon, renal physician or rehabilitations.

Education and self-management techniques disability benefits or re-training to reduce the socio economic impact of rheumatic disease on the patient. Multi-disciplinary pain management techniques and pain-relieving procedures such as epidural and regional nerve blocks physical treatments such as manipulative and mobilization techniques.

To communicate these needs effectively with members of the multidisciplinary team (physiotherapist, occupational therapist, nurse specialist, orthoptist, podiatrist or clinical psychologist) with other clinical colleagues with relevant support workers including medical social worker and voluntary agencies

**E. Perform procedures –**

- i. To be able to identify the correct indications for joint injection/aspiration soft tissue injection.
- ii. To aspirate and inject joints competently using the appropriate techniques
- iii. To recognize the macroscopic appearance of normal and abnormal synovial fluid (no inflammatory, inflammatory, hemorrhagic and septic)
- iv. To inject soft tissue lesions competently using the appropriate techniques (tennis/golfer's elbow, carpal tunnel, tenosynovitis/flexor tendon nodules, bursitis, tendinitis and plantar fasciitis).

**F. Perform clinical audit and assessing outcomes –**

To be able to design, plan and carry out an audit project on a relevant clinical topic. To achieve this the trainee will be required to specify an appropriate standard of practice for auditing, identify suitable outcome measures, apply appropriate statistical methods to achieve a robust study, design and analysis of results, complete the audit 'loop' to demonstrate whether change in practice has occurred.





### **G. Learn managing a rheumatology unit–**

To acquire the management skills relevant to participation in and leadership of a rheumatology team. To achieve this the trainee will be required to demonstrate effective time management, negotiating skills, participation in staff organization, and effective supervision of junior medical staff.



## **VII. SCHEDULE OF POSTING AND TRAINING PROGRAMME**

### **1. First Year: Rheumatology Department Out-patient/Wards/Laboratory- One Year**

### **2. Second Year**

- i. Dermatology: 2-3 weeks
- ii. Radiology: 2 Weeks (in addition must attend clinic-radiologic meeting)
- iii. Ophthalmology: 1 Week
- iv. Physical Medicine & Rehabilitation: 2 weeks
- v. Laboratory: 2 weeks
- vi. Students who are posted outside should attend Theory classes, Journal club and case presentation daily at the Department of Rheumatology in the afternoon.
- vii. Student must attend clinic-pathological meetings in the institution  
Rheumatology department  
OP/Wards/Laboratory: 9-10 Months  
(Musculoskeletal Ultra sonography, Laboratory included in nine months)

### **3. Third Year**

- i. Rheumatology Department-OP/Wards/Laboratory One year
- ii. Laboratory-2 weeks included in one year
- iii. Besides the above, Synovial aspirations, Intra articular injections, interpretation of X-rays, CT Scan, M.R.I, Dual Energy X-Ray Absorptiometry (DXA) and Ultra sound are to be undertaken.



## VIII. LOGBOOK

A candidate shall maintain a log book of operations (assisted / performed) during the training period, certified by the concerned post graduate teacher / head of the department/senior consultant.

This log book shall be made available to the board of examiners for their perusal at the time of the final examination.

The logbook should show evidence that the before mentioned subjects were covered (with dates and the name of teacher(s)) The candidate will maintain the record of all academic activities undertaken by him/her in logbook.

- i. Personal profile of the candidate
- ii. Educational qualification/Professional data
- iii. Record of case histories
- iv. Procedures learnt
- v. Record of case Demonstration/Presentations
- vi. Every candidate, at the time of practical examination, will be required to produce performance record (log book) containing details of the work done by him/her during the entire period of training as per requirements of the logbook. It should be duly certified by the supervisor as work done by the candidate and countersigned by the administrative head of the institution.
- vii. In the absence of production of logbook, the result will not be declared.



## **IX. RECOMMENDED TEXT BOOKS AND JOURNALS**

### **BOOKS**

- i. Oxford Handbook of Rheumatology (Eds Hakim, Clunie and Haq. Published by Oxford University Press)
- ii. Oxford Textbook of Rheumatology (Eds Isenberg, Madison, Woo, Klars and F. C. Breedveld. Published by Oxford University Press)
- iii. Kuby Immunology
- iv. Kelly's Textbook of Rheumatology
- v. Rheumatology 5th edition (Eds Hochberg et al. Published by Elsevier)
- vi. Textbook of Pediatric Rheumatology (Authors Cassidy, Petty)

### **JOURNALS**

- i. Annals of the Rheumatic Diseases (ARD) Official Journal of EULAR
- ii. Arthritis and Rheumatism – official journal of the American College of Rheumatology (ACR)
- iii. Arthritis Research and Therapy
- iv. Current Opinion in Rheumatology
- v. Journal of Rheumatology
- vi. Nature Reviews Rheumatology
- vii. Rheumatology – Oxford journals – Official Publication of British Society of Rheumatology
- viii. International Journal of Rheumatic Diseases. Official Publication of APLAR
- ix. Indian Journal of Rheumatology

