



OFFICE OF THE DEAN

**Sri Lakshmi Narayana Institute of Medical Sciences**

OSUDU, AGARAM VILLAGE, VILLIANUR COMMUNE, KUDAPAKKAM POST,  
PUDUCHERRY - 605 502.

[ Recognised by Medical Council of India, Ministry of Health letter No. U/12012/249/2005-ME ( P -II ) dt. 11/07/2011 ]  
[ Affiliated to Bharath University, Chennai - TN ]

date : 12/05/2020

From  
DR. Boblee James,  
Professor and Head,  
orthopaedics,  
Slims,  
Bharath Institute of Higher Education and Research,  
Pondicherry.

To  
The Dean,  
Slims,  
Bharath Institute of Higher Education and Research,  
Pondicherry.

**Sub: Permission to conduct value-added course: evaluation of arthritis**

**Respected Sir ,**

With reference to the subject mentioned above, the department proposes to conduct a value-added course titled: **Evaluation of Arthritis** on 8/7/2020. We solicit your kind permission for the same.

Kind Regards

Dr, Boblee James

PROFESSOR & HOD  
Department of Orthopaedics  
Sri Lakshmi Narayana Institute of Medical Sciences  
Pondicherry - 605 502.

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**FOR THE USE OF DEANS OFFICE**

Names of Committee members for evaluating the course:

The Dean: Dr. Jayakumar

The HOD: Dr. Boblee James

The Expert: Dr. Vijayakumaran



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The committee has discussed about the course and is approved

Dean

DEAN  
Sri Lakshmi Narayana Institute of Medical Sciences  
Osudu, Agaram Kudapakam Post,  
Villanur Commune Puducherry-605 502.

Subject Expert

Department of Orthopaedics  
Sri Lakshmi Narayana Institute of Medical Sciences  
Pondicherry - 605 502.

HOD

**PROFESSOR & HOD**  
Department of Orthopaedics  
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# **Course Proposal**

**Course Title: *evaluation of arthritis***

**Course Objective:** to assess types, symptoms and signs of arthritis

**Course Outcome:** how to assess a case of arthritis

**Course Audience:** 20

**Course Coordinator:** Dr. Jayakumar

**Course Faculties with Qualification and Designation:**

**1.DR.BOBLEE JAMES M.S ORTHO**

**Course Curriculum/Topics with schedule (Min of 30 hours)**

| SlNo | Date     | Topic                  | Time         | Hours |
|------|----------|------------------------|--------------|-------|
| 1    | 8/7/20   | AIM                    | 4.30 to 5.30 | 1     |
| 2    | 10/8/20  | OA CLASSIFICATION      | 5 to 6       | 1     |
| 3    | 12/9/20  | ETIOLOGY               | 5 to 6       | 1     |
| 4    | 21/9/20  | MECHANISM              | 6 to 7       | 1     |
| 5    | 16/10/20 | OA OF DIFFERENT JOINTS | 4.30 to 5.30 | 1     |
| 6    | 17/11/20 | SYMPTOMS               | 6 to 7       | 1     |
| 7    | 5/12/20  | TREATMENT              | 4.30 to 5.30 | 1     |
| 8    | 20/12/20 | DISABILITY IN OA       | 6 to 7       | 1     |
| 9    | 1/1/21   | RHEUMATOID ARTHRITIS   | 4 to 6       | 2     |
| 10   | 4/1/21   | PRACTICAL SESSION      | 4 to 8       | 4     |
| 11   | 9/1/21   | PRACTICAL SESSION      | 4 to 7       | 3     |
| 12   | 18/1/21  | PRACTICAL SESSION      | 4 to 8       | 4     |
| 13   | 23/1/21  | PRACTICAL SESSION      | 4 to 6       | 2     |
| 14   | 26/1/21  | PRACTICAL SESSION      | 4 to 7       | 3     |
| 15   | 30/1/21  | PRACTICAL SESSION      | 4 to 8       | 4     |
|      |          |                        | Total Hours  | 30    |

### **REFERENCE BOOKS:**

1) LIVING WITH RHEUMATOID ARTHRITIS

TAMMI. L. SHLOTZHAUER

2) OXFORD TEXT BOOK OF RHEUMATOID ARTHRITIS

DAVID .L.SCOTT,JAMES GALLOWAY



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### **VALUE ADDED COURSE**

**1. Name of the programme & Code**

EVALUATION OF ARTHRITIS - OR01

**2. Duration & Period**

30 hrs & JULY 2020 – JANUARY 2021

**3. Information Brochure and Course Content of Value Added Courses**

*Enclosed as Annexure- I*

**4. List of students enrolled**

*Enclosed as Annexure- II*

**5. Assessment procedures:**

Short notes- *Enclosed as Annexure- III*

**6. Certificate model**

*Enclosed as Annexure- IV*

**7. No. of times offered during the same year:**

1 JULY 2020 - JANUARY 2021

| Value Added Course- JULY 2015-JAN 2016 |             |                         |                  |                 |                         |
|--|-------------|-------------------------|------------------|-----------------|-------------------------|
| Sl. No                                 | Course Code | Course Name             | Resource Persons | Target Students | Strength & Year         |
| 1                                      | OR01        | EVALUATION OF ARTHRITIS | Dr. Boblee james | THIRD YEAR MBBS | 18 (JULY 2020 – Jan 21) |

**8. Summary report of each program year-wise**

**9. Course Feed Back** *Enclosed as Annexure- V*

**RESOURCE PERSON**  
**DR. BOBLEE JAMES**

**COORDINATOR**  
**DR. JAYAKUMAR**

**PROFESSOR & HOD**  
Department of Orthopaedics  
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## EVALUATION OF ARTHRITIS

8/7/2020



## EVALUATION OF ARTHRITIS

| Particulars | Description |
|-------------|-------------|
|-------------|-------------|





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|                                |   |
|--------------------------------|---|
| Course Title                   | EVALUATION OF ARTHRITIS   |
| Course Code                    | OR01  |
| Objective                      | AIM<br>OA CLASSIFICATION<br>ETIOLOGY<br>MECHANISM<br>OA OF DIFFERENT JOINTS<br>SYMPTOMS<br>TREATMENT<br>DIABILITY IN OA<br>RHEUMATOID ARTHRITIS |
| Further learning opportunities | TYPES OF ARTHRITIS  |
| Key Competencies               | On successful completion of the course the students will have complete understanding of evaluating and managing arthritis                       |
| Target Student                 | Pre final year Students   |
| Duration                       | 30hrs JULY 20- January 2021   |
| Theory Session                 | 10hrs   |
| Practical Session              | 20hrs   |
| Assessment Procedure           | Short notes   |



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AIM:

Types of arthritis

Symptoms of arthritis

Signs of arthritis

Treatment of arthritis

Rheumatoid arthritis (RA)

Osteoarthritis (OA)

Sero-negative arthritis

Ankylosing spondylitis

Psoriatic arthritis

Reactive arthritis

Enteropathic arthritis

Crystal arthropathies

ABCD stands for :

☐ A: ALIGNMENT

☐ B: BONY MINERALIZATION

☐ C: CARTILAGE SPACE

☐ D: DISTRIBUTION

☐ S: SOFT TISSUE

☐ *A chronic joint disorder in which there is progressive softening and disintegration of articular cartilage accompanied by new growth of cartilage and bone at the joint margins (osteophytes) and capsular fibrosis*



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Primary or idiopathic

Secondary

### OA CLASSIFICATION:

☐ Infection

☐ Dysplasia

☐ Perthes

☐ SCFE

☐ Trauma

☐ AVN

### ETIOLOGY:

Genetic

Metabolic

Hormonal

Mechanical

Ageing

### MECHANISM:





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Disparity between:- stress applied to articular cartilage and strength of articular cartilage

Increased stress (F/A) Increased load eg BW or activity

Decreased area eg varus knee or dysplastic hip

Weak cartilage age stiff eg ochronosis

soft eg inflammation

abnormal bony support eg AVN

### OSTEOARTHRITIS:

Joint space narrowing

☐ Osteophytosis

☐ Subchondral cysts

☐ Subchondral sclerosis

### HIP OA:

Femoral neck buttressing

Tilt deformity ( flattening of head surface with osteophyte at anteroinferior aspect)

Superior >medial migration

Secondary OA due to previous trauma or nflammatory arthritis

### OA KNEE:

Erect weight-bearing AP film

☐ Unicompartmental

☐ Sharpening of tibial prominence



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☐ Loose bodies

☐ Varus deformity

☐ Patellar tooth sign – irregular anterior patellar Surface

OA SPINE:

Vacuum Phenomenon

Accumulation of Nitrogen

Degenarative etiology

Better seen in Extension

Excludes infective etiology

In peripheral joints physiological

SYMPTOMS:

pain

swelling

stiffness

deformity

instability

loss of function

TREATMENT:

Analgesia

Oral viscosupplements



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Intrarticular steroids

Intrarticular viscosupplements

Altered activity

Walking aids

Physiotherapy

arthroscopy

osteotomy

arthrodesis

excision arthroplasty

replacement arthroplasty?

### **RHEUMATOID ARTHRITIS:**

Bilateral symmetry

Periarticular soft tissue swelling

Uniform joint space loss

Marginal erosions

Juxta-articular osteoporosis

Joint deformity

### **DISABILITY IN EARLY RA:**

Inflammation

◦ Swollen



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- Stiff
- Sore
- Warm
- ☐ Fatigue
- ☐ Potentially Reversible

### RA- DEFORMITY:

Boutonniere deformity : flexion deformity at PIP jt & hyperextension at DIP

- Swan neck deformity : combination of flexion at DIP and extension at PIP

### RA CERVICAL SPINE:

Atlantodental interspace > 3.0mm

Odontoid erosions

Subluxation

Pseudo basilar invagination

Reduced disc space

Apophyseal joint: erosion, sclerosis, ankylosis

Sharpened pencil spinous process ADI > 3.0mm

### RA SHOULDER:

Soft tissue swelling

Rotator cuff rupture



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Head erosions

Tapered distal clavicle due to erosions

Irregular coracoid process

Enlarged Olecranon bursa

Fat pad sign

Supinator notch sign: erosion at proximal ulna

RA-KNEE

Uniform bicompartamental joint space loss

Patellofemoral joint also involved

Soft tissue swelling

Baker's cyst

Subchondral cysts

Rheumatoid arthritis

Rheumatoid arthritis is a synovial disease

-Osteoarthritis is a disease of the cartilage.

-Volar subluxation never in osteoarthritis

Normal joint

DIABILITY IN RA:

Most of the disability in RA is a result of the INITIAL burden of disease





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People get disabled because of:

- Inadequate control
- Lack of response
- Compliance

GOAL: control the disease early on! NSAIDS

Steroids

Oral

Intra-articular

DMARDS

Synthetic

Methotrexate

Hydroxychloroquine

Leflunomide

Sulfasalazine

Biological:

Monoclonal Antibodies to TNF

- Infliximab
- Adalimumab

▣ Soluble Receptor Decoy for TNF

- Etanercept

▣ Receptor Antagonist to IL-1

- Anakinra



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☐ Monoclonal Antibody to CD-20

◦ Rituximab ☐

NSAIDS:

Cyclo-oxygenase inhibitors

Do not slow the progression of the disease

Provide partial relief of pain and stiffness

Disease Modifying Anti-Rheumatic Drugs

☐ Reduce swelling & inflammation

☐ Improve pain

☐ Improve function

☐ Have been shown to reduce radiographic

progression (erosions) ☐ Dihydrofolate reductase inhibitor

☐ ↓ thymidine & purine nucleotide synthesis

☐ “Gold standard” for DMARD therapy

☐ 7.5 – 30 mg weekly

☐ Absorption variable

☐ Elimination mainly renal ☐ Hepatotoxicity

☐ Bone marrow suppression

☐ Dyspepsia, oral ulcers

☐ Pneumonitis



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☐ Teratogenicity

☐ Folic acid reduces GI & BM effects

☐ Monitoring

◦ FBC, ALT, Creatinine ☐ Sulphapyridine + 5-aminosalicylic acid

☐ Remove toxic free radicals

☐ Remission in 3-6 month ☐ Elimination hepatic

☐ Dyspepsia, rashes, BM suppression ☐ Mechanism unknown

◦ Interference with antigen processing ?

◦ Anti- inflammatory and immunomodulatory

• For mild disease Side effects

☐ Irreversible Retinal toxicity, corneal deposits

☐ Ophthalmologic evaluation every 6 months ☐

Competitive inhibitor of dihydroorotate dehydrogenase (rate-limiting enzyme in denovo synthesis of pyrimidines)

☐ Reduce lymphocyte proliferation ☐

Oral

☐ T  $\frac{1}{2}$  - 4 – 28 days due to EHC

☐ Elimination hepatic

☐ Action in one month

☐ Avoid pregnancy for 2 years ☐ Hepatotoxicity

☐ BM suppression

☐ Diarrhoea



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☐ rashes☐

Triple Therapy

- Methotrexate, Sulfasalazine, Hydroxychloroquine

Double Therapy

- Methotrexate & Leflunomide
- Methotrexate & Sulfasalazine
- Methotrexate & Hydroxychloroquine • Complex protein molecules
- Created using molecular biology methods
- Produced in prokaryotic or eukaryotic cell cultures☐

TNF is a potent inflammatory cytokine

☐ TNF is produced mainly by macrophages and monocytes

☐ TNF is a major contributor to the inflammatory and destructive changes that occur in RA

☐ Blockade of TNF results in a reduction in a number of other pro-inflammatory cytokines (IL-1, IL-6, & IL-8)Trans-Membrane

Bound TNF

Soluble TNF

Strategies for Reducing Effects of TNF

Macrophage

Monoclonal Antibody (Infliximab & Adalimumab)☐Infection

- Common (Bacterial)
- Opportunistic (Tb)

☐Demyelinating Disorders



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❑ Malignancy

❑ Worsening CHF❑

Potent anti-inflammatory drugs

❑ Serious adverse effects with long-term use

❑ To control the diseases

❑ Indications

◦ As a bridge to effective DMARD therapy

◦ Systemic complications (e.g. vasculitis)❑

Most common childhood chronic disease causing disability.

❑ About 7/100,00 newly diagnosed children with JIA per year.

❑ Prevalence about 1/1,000 children = 1,000 children in BC with JIA.

❑ 7 subtypes.

❑ Disease begins at any time during childhood or adolescence.❑

To be considered JIA, onset must occur before 16 years of age.

❑ JIA is heterogeneous: the presentation of the disease and its natural history vary among individuals and over time.

❑ The disease is typically classified into categories based on the symptoms displayed and their severity.

❑ Systemic arthritis

❑ Oligoarthritis

❑ Rheumatoid-factor positive (RF+) polyarthritis

❑ Rheumatoid-factor negative (RF-) polyarthritis

❑ Enthesitis-related arthritis





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☐ Psoriatic arthritis

☐ Undifferentiated

G.ahrq.gov/dmardsjia.cfm. ☐

Child under 16 years old

At Least one joint with objective signs of arthritis:

› Swelling, or two of the following: pain with movement, warmth of the joint, restricted movement, or tenderness

Duration of more than 6 weeks

Other causes have been excluded (ex. Infections, Lupus and other connective tissue diseases, malignancies)☐

All kids with JIA have fevers.

All kids with JIA have rashes.

A child with joint pain (but no arthritis) must have JIA.

All arthritis is painful.

If a child has a positive rheumatoid factor, they must have arthritis. ☐

If x-rays are normal, there is no arthritis. ☐

Heterogeneous group of diseases characterized by chronic inflammatory processes involving the synovial membrane, cartilage, and bone

☐ The classification of JIA subgroups based on clinical and laboratory characteristics including the number of affected joints and the presence of autoimmune markers

☐ Th1 cell-mediated disorder, driven by a population of T cells producing inflammatory cytokines and chemokines☐



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### VALUE ADDED COURSE EVALUATION OF ARTHRITIS

OROI

4. List of Students Enrolled JULY 2020 - Jan- 2021

#### Pre final Year MBBS Student

| Sl. No | Name of the Student     | Roll No  | signature    |
|--------|-------------------------|----------|--------------|
| 1      | ABDUL RAHMAN.A.         | U13MB151 | Abdul Rahman |
| 2      | ABIRAMI KAMBAN K.S      | U13MB152 | Abirami      |
| 3      | ABIRAMILA.              | U13MB153 | Abirami      |
| 4      | AFRAA.S.                | U13MB154 | Afraa        |
| 5      | AHILA.M.                | U13MB155 | Ahila        |
| 6      | AKMAR JEBIN.V.P.        | U13MB156 | Akmar        |
| 7      | AKSHAYA. S.             | U13MB157 | Akshaya      |
| 8      | ALLADI SANATH KUMAR     | U13MB158 | Alladi       |
| 9      | ANBAZHAGAN. D           | U13MB159 | Anbazhagan   |
| 10     | ANGELIN JEEVA PUSHPAM.S | U13MB160 | Angelin      |
| 11     | ANIK GHORAI             | U13MB161 | Anik         |
| 12     | ANUPRIYA. B.            | U13MB162 | Anupriya     |
| 13     | ANUPRIYA.S.             | U13MB163 | Anupriya     |
| 14     | ANUSUYA.V.,             | U13MB164 | Anusuya      |
| 15     | ARIKO IMCHEN            | U13MB165 | Ariko        |
| 16     | ARULMOZHI. T.           | U13MB166 | Arulmozhi    |
| 17     | ARUN KUMAR. K.          | U13MB167 | Arun         |
| 18     | BALAJI. S.              | U13MB168 | Balaji       |



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Course: evaluation of arthritis  
Name: ANUPRIYA.B  
Reg NO.  
Department: orthopaedics

Q 1: Please rate your overall satisfaction with the format of the course:

a. ☒ Excellent b. ☐ Very Good c. ☐ Satisfactory d. ☐ unsatisfactory

Q 2: Please rate course notes:

a. ☐ Excellent b. ☒ Very Good c. ☐ Satisfactory d. ☐ unsatisfactory

Q 3: The lecture sequence was well planned

a. ☐ Excellent b. ☒ Very Good c. ☐ Satisfactory d. ☐ unsatisfactory

Q 4: The lectures were clear and easy to understand

a. ☒ Excellent b. ☐ Very Good c. ☐ Satisfactory d. ☐ unsatisfactory

Q 5: Please rate the quality of pre-course administration and information:

a. ☒ Excellent b. ☐ Very Good c. ☐ Satisfactory d. ☐ unsatisfactory

Q 6: Any other suggestions:

Comments:

Thank you for taking the time to complete this survey, your comments are much appreciated.

OPTIONAL Section: Name \_\_\_\_\_  
Signature \_\_\_\_\_ Date \_\_\_\_\_



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1-3 Small Joints  
4-10 Small Joints  
>10 Joints

Serology

Negative RF & Negative ACPA 0  
Low-positive RF & low-positive ACPA 2  
High-positive RF or High positive ACPA 3

Acute-phase Reactants

Normal CRP & Normal ESR 0  
Abnormal CRP or abnormal ESR 1

Duration of Symptoms

<6 weeks 0  
>6 weeks 1

Osteoarthritis Assessment & Evaluation of Osteoarthritis

→ Anxious, Overweight (female)

Joint Examination

- No Swelling, Inflammation or deformities involving the hands, wrists, elbows, knees, ankles, or feet.

Examination of Right hip demonstrated pain on full Rotation with tenderness over the lateral hip at the trochanteric bursa.

→ diffuse soft tissue tenderness in the Neck, Shoulders & back

→ Active Findings

ESR - NORMAL  
X-Ray - No significant Joint Space Narrowing was apparent.

Assessment & Evaluation of fibromyalgia

→ Chronic widespread pain & exhaustion  
→ Generalized pain & soft tissue tenderness & ESR - Normal  
- Moderate to Severe Sleep problem or fatigue





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- 1) How to assess & evaluate various type of arthritis?
- 2) Management of various type of arthritis?

### 2) Arthritis - Inflammation of Joint

#### Type of Arthritis

Osteoarthritis - Most Common  
Rheumatoid Arthritis  
Fibromyalgia  
Lupus ~~erythematosus~~ arthritis  
Gout



#### Assessment & evaluation of Arthritis Rheumatoid Arthritis

- presented with Swelling & Inflamed Joint
- fatigue & low-grade fever (Characteristic of an Immune or inflammatory disease).

#### Evaluation

Complete Blood Count  
Acute phase Reactant  
✓ Erythrocyte Sedimentation Rate or C-Reactive protein (CRP)  
Rheumatoid factor (RF) or Anti Citrullinated peptide (Anti-ccp)

(X) X-Rays.

finding seen in Rheumatoid Arthritis → Elevated level of CRF or ESR  
RF or test for anti-cyclic citrullinated peptide (ACCP) positive.  
Inflammatory arthritis → Involving 3 or more Joints.

#### AUR/Kawachi Classification Criteria for RA

| Joint Involvement | Score |
|-------------------|-------|
| 1. large Joint    | 0     |
| 1-10 large Joint  | 1     |





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Assessment & Evaluation of Lupus Arthritis.

- Antinuclear Antibody test
- Complete Blood Count
- X-Rays

Generalized pain & Soft tissue tenderness.

2) Management of Various types of arthritis.

1) Rheumatoid Arthritis

The goal of treatment is to provide pain Relief, increase Joint Mobility & Strength & Control of Disease.

Treatment

- Medication, Exercise, heat / Cold Compresses, Use of Joint protection
- Surgery:
- NSAIDs - (Non Steroidal Anti-inflammatory drug)  
include ibuprofen & Naproxen.
- DMARDs - (Disease-modifying Antirheumatic Drug)  
include - Methotrexate, Hydroxychloroquine (Plaquenil)

2) Osteoarthritis

- Medication (topical/pain Medicines, Oral analgesics include NSAIDs)
- Exercise
- Intermittent hot & cold pack
- Physical, Occupational & exercise therapy
- Weight loss

3) Lupus Arthritis

- Medication (as Corticosteroid)  
Abatacept, cyclosporine.
- Exercise
- Intermittent hot & cold pack
- Weight loss

4



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(Deemed to be University under section 3 of the UGC Act 1956)



### CERTIFICATE OF MERIT

This is to certify that ABDUL RAHMAN has actively  
participated in the Value Added Course on *Evaluation of Arthritis* held during JULY 2020  
– Jan 2021 Organized by Sri Lakshmi Narayana Institute of Medical Sciences,  
Pondicherry- 605 502, India.

Dr. BOBLEE JAMES  
RESOURCE PERSON

Dr. JAYAKUMAR  
COORDINATOR



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### Student Feedback Form

Course Name: **EVALUATION OF ARTHRITIS**

Subject Code: **OR01**

Name of Student: Arulmozhi T Roll No.: U13MB166

We are constantly looking to improve our classes and deliver the best training to you. Your evaluations, comments and suggestions will help us to improve our performance

| Sl. NO | Particulars  | 1 | 2 | 3 | 4 | 5 |
|--------|--|---|---|---|---|---|
| 1      | Objective of the course is clear                   |   |   |   |   | ✓ |
| 2      | Course contents met with your expectations         |   |   |   |   | ✓ |
| 3      | Lecturer sequence was well planned                 |   |   |   |   | ✓ |
| 4      | Lectures were clear and easy to understand         |   |   |   |   | ✓ |
| 5      | Teaching aids were effective                       |   |   |   |   | ✓ |
| 6      | Instructors encourage interaction and were helpful |   |   |   |   | ✓ |
| 7      | The level of the course                            |   |   |   |   | ✓ |
| 8      | Overall rating of the course                       | 1 | 2 | 3 | 4 | 5 |

\* Rating: 5 - Outstanding; 4 - Excellent; 3 - Good; 2 - Satisfactory; 1 - Not-Satisfactory

Suggestions if any:

  
Signature



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Date:30/1/21

From  
Dr. Boblee James,  
Orthopaedics,  
SLIMS,  
Bharath Institute of Higher Education and Research,  
Pondicherry.

Through Proper Channel

To  
The Dean,  
SLIMS,  
Bharath Institute of Higher Education and Research,  
Pondicherry.

**Sub: Completion of value-added course: evaluation of arthritis**

Respected Sir,

With reference to the subject mentioned above, the department has conducted the value-added course titled: **Evaluation of arthritis on 30/1/21**. We solicit your kind action to send certificates for the participants, that is attached with this letter. Also, I am attaching the photographs captured during the conduct of the course.

Kind Regards

Dr. Boblee James

PROFESSOR & HOD  
Department of Orthopaedics,  
Sri Lakshmi Narayana Institute of Medical Sciences  
Pondicherry - 605 502.

**Encl: Certificates**

**Photographs**



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