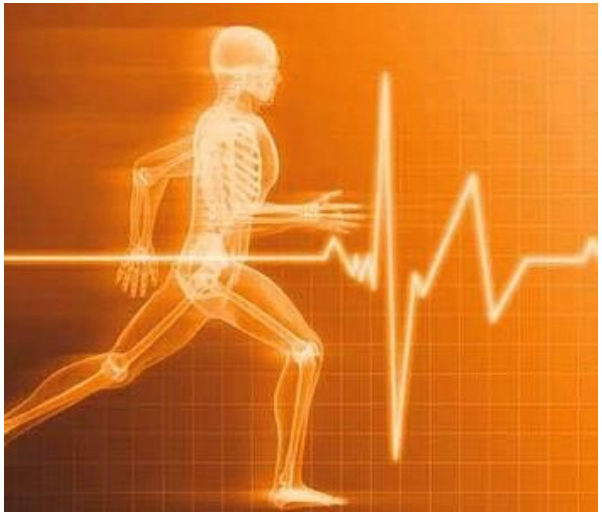

Department of Sports Biomechanics, School of Sports Sciences
Central University of Rajasthan

E Prospectus (2023-2024)

Vision of Department

- M.Sc program in Sports Biomechanics focuses on the science concerned with the analysis of human movement through simulation and measurement.
- This program aims to have a better understanding of human performance in sports activities, also to improve field performance, and to minimize injury.
- This program intends to attract talents willing to excel in their career as sports biomechanics practitioners or analysts those looking to extend their knowledge in higher-level academics and research.
- This program intends to teach principles and concepts involved in sports biomechanics to align the students in several aspects like gait analysis, mechanics of bone, muscle and tendon, ligaments, etc., injury prevention and rehabilitation.
- Students in this program will be taught various methods of experimental data collection (force plates platforms, electromyography, grip and back dynamometers, neuromuscular imaging) and interpretation (motion analysis and 3D modelling software, MATLAB, etc.) to provide a collective solution to human motion analysis based on theoretical and empirical approach in sports biomechanics.
- The students will also be using field data of games and sports for their simulation works together with the data obtained from the questionnaire developed by the help of the faculties for improving sports performances.

Faculty Profile

Dr. Guneet Inder Jit Kaur
Assistant Professor &Coordinator

• Master in Psychology (Specialization in Sports Psychology), Panjab University, Chandigarh (Gold Medalist) • Ph.D. Psychology (Sports Psychology), Panjab University, Chandigarh • Assistant Professor, Dept. of Psychology, JAIN (Deemed to be University),

guneet@curaj.ac.in
9815292212

Dr. A.V.R. Krishna Rao
Assistant Professor

Ph.D. (Biosciences and Biomedical Engineering), Indian Institute of Technology Indore. • M.Tech. (Nanotechnology), Indian Institute of Technology Roorkee. • B.Tech. (Biotechnology), Vaagdevi College of Engineering, JNTU Hyderabad.

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Details of the Program

- Msc in Sports Biomechanics
- Duration of program – 2 years (4 semesters)
- Approved Intake – 30
- Minimum Eligibility for entry: Bachelors' Degree in any branch of Science /Life Sciences/Bio- Physics/ Engineering or any other examination recognized equivalent to or higher degree, any medical (MBBS, BDS, BAMS) BPT/Allied Medical Sciences degree with 50% marks or equivalent grade in aggregate for General category and 45% or equivalent grade for SC/ST/OBC/PWD candidates.
- Course Structure – Semester-wise, identifying Core courses, Discipline Electives, Extra-Departmental Electives, Practice/Lab/Workshop Courses,

Syllabus

SEMESTER I			
Code	Title of Course	Type of Course	Credits
MSSBM 101	Human Anatomy and Physiology	Core 1	4
MSSBM 102	Biomolecules and Metabolism	Core 2	4
MSSBM 103	Food and Nutrition	Core 3	4
MSSBM 104	Introduction to biomechanics	Core 4	4
MSSBM 105	Discipline Elective I	DE 1	4
MSSBM 106	Practicum I	P 1	2
MSSBM 107	Practicum II	P 2	2
MSSBM 108	Fitness		1
MSSBM 109	Societal		1
SEMESTER II			
MSSBM 201	Kinesiology	Core 5	4
MSSBM 202	Psychological and Social Aspects of Sports	Core 6	4
MSSBM 203	Principles and methods of Sports Training	Core 7	4
MSSBM 204	Discipline Elective II	DE 2	4
MSSBM 205	Discipline Elective III	DE 3	4
MSSBM 206	Practicum III	P 3	2
MSSBM 207	Practicum IV	P 4	2
MSSBM 208	Fitness		1
MSSBM 209	Societal		1
SEMESTER III			
MSSBM 301	Dynamics of Gait	Core 8	4
MSSBM 302	Mechanobiology	Core 9	4
MSSBM 303	Discipline Elective IV	DE 4	4
MSSBM 304	Discipline Elective V	DE 5	4
MSSBM 305	Elective I	E 1	4
MSSBM 306	Practicum V	P 5	2
MSSBM 307	Practicum VI	P 6	2
MSSBM 308	Fitness		1
MSSBM 309	Societal		1
SEMESTER IV			
MSSBM 401	Discipline Elective VI	DE 6	4
MSSBM 402	Elective II	E 2	4
MSSBM 403	Dissertation		16
MSSBM 404	Fitness		1
MSSBM 405	Societal		1
TOTAL CREDITS			96

List of Electives

DISCIPLINE ELECTIVE COURSES		
Sl. No.	Title of Course	Credits
1.	Fatigue, Injuries and Rehabilitation	4
2.	Essentials of Sports	4
3.	Kinanthropometry	4
4.	Health Fitness and Wellness	4
5.	Research Methodology	4
6.	Instrumentation and Techniques in Biomechanics	4
7.	MATLAB	4
8.	Biomechanics of Yoga Asanas	4
9.	Biomechanical Applications in Sports Training	4
10.	Application of Gross Anatomy in Sports	4
11.	Biomechanical Analysis of Athletics and Team Games	4
12.	Biomechanical Analysis of Human Movements	4
13.	Statistics for Sports Science	4

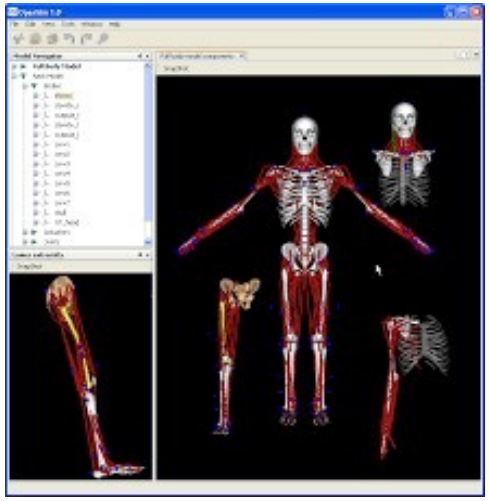
Facilities in School of Sports Sciences

- The department is in the process of establishing a well-equipped laboratory to carry out research in the area of Sports Biomechanics along with a Computer laboratory. Various Models, Charts and Instruments have been procured in the labs:

•Full articulated Skeleton
•Torso with Head and Interchangeable Male and Female Genitals
•Vertebral Column with Stand
•Anatomical Model of Heart, Stomach, Liver, Ear, Eye, Brain, Kidney
•Functional human joint models
•Disarticulated Human Bones
•Charts on all the systems of the body : Respiratory system, Circulatory System, Muscular System, Skeletal System, Nervous System, Reproductive System, Lymphatic System, Endocrine System, etc.
•Anthropometric Rods
•Digital Stadiometer
•Manual Stadiometer

•Digital Skin fold Callipers
•Sit and Reach Box
•Digital Glucometer
•Digital Cholesterol Analyser
•Finger Pulse Oximeter
•Sphygmomanometer
•Digital Metronomes
•Digital Weighing Scale
•Girth Measuring Tapes

Motion Analysis using Opensim software



Sports Biochemistry and Physiology Lab

Human Models for teaching and laboratory purpose

Physical fitness & anthropometric assessment

Career Prospects

- Expert in Sports Injury prevention and management
- Design of Sports Apparels for performance enhancement
- Develop new exercise/fitness regime to attain specific skill set
- Design of technical tools and software to quantify parameters related to sports performance