



**राष्ट्रीय खेल विश्वविद्यालय  
मणिपुर  
केन्द्रीय विश्वविद्यालय  
युवा कार्यक्रम एवं खेल मंत्रालय  
भारत सरकार**

**NATIONAL SPORTS UNIVERSITY  
MANIPUR, INDIA  
Central University  
Ministry of Youth Affairs and Sports  
Government of India**

**Bachelor of Science in Sports Coaching  
(B.Sc. Sports Coaching)  
Specialization: Athletics**

**SCHEME OF EXAMINATION, STRUCTURE & COURSE CONTENT**

**Four Years: Eight Semesters, Regular Degree Programme**

**Following UGC-CBCS Guidelines**

**2021-22 to 2024-25**

**Bachelor of Science in Sports Coaching****B. Sc. (Sports Coaching)****Specialization: Athletics****SEMESTER - I**

| Course Code             | Course Name  | Credit    | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------------------|--|-----------|----------------|----------------|----------------|-------------|
| <b>THEORY COURSE</b>    |  |           |                |                |                |             |
| BSC/CC/101              | Introduction to Sports Culture and Coaching                    | 3         | 48             | 30             | 45             | 75          |
| BSC/CC/102              | Anatomy and Physiology   | 3         | 48             | 30             | 45             | 75          |
| BSC/CC/103A             | Historical Development and Organizational Structure: Athletics | 3         | 48             | 30             | 45             | 75          |
| BSC/GE/01               | Introduction to Information Technology in Sports               | 2         | 32             | 20             | 30             | 50          |
| BSC/AECC/01             | English (Modern Indian Languages)                              | 2         | 32             | 20             | 30             | 50          |
| <b>LAB PRACTICAL</b>    |  |           |                |                |                |             |
| BSC/CC(P)/102           | Anatomy & Physiology   | 1         | 32             | 10             | 15             | 25          |
| BSC/GE(P)/01            | Introduction to Information Technology in Sports               | 1         | 32             | 10             | 15             | 25          |
| <b>SPORTS PRACTICAL</b> |  |           |                |                |                |             |
| BSC/CCP/104A            | General Conditioning and Performance – I: Athletics            | 4         | 128            | 50             | 50             | 100         |
| BSC/CCP/105A            | Practical: Athletics   | 6         | 192            | 75             | 75             | 150         |
| <b>TOTAL</b>            |  | <b>25</b> | <b>592</b>     | <b>275</b>     | <b>350</b>     | <b>625</b>  |

**NCC will be included as per the UGC guidelines.**

NB: CC= Core Course, AECC=Ability Enhancement compulsory course,DSC= Discipline Specific Course, GE=Generic Elective, SECC= Skill Enhancement core course, CCP= Core course practical

## SEMESTER - I

### INTRODUCTION TO SPORTS CULTURE AND COACHING

COURSE CODE: BSC/CC/101

| Course Code          | Course Name                                 | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|----------------------|---|--------|----------------|----------------|----------------|-------------|
| <b>THEORY COURSE</b> |   |        |                |                |                |             |
| BSC/CC/101           | Introduction to Sports Culture and Coaching | 3      | 48             | 30             | 45             | 75          |

### COURSE LEARNING OUTCOMES

After completing this course, the students will be able to

- Understand the Indian Sports Culture, its Philosophy and Culture Heritage.
- Understand role of Sports Competition to Create Sports Culture and impact on strengthening sports ecosystem
- Know about the origin of International and National Games and its organization and conduct role in Sports Culture Development
- Understand social impact of activities of Sports Associations, Institutions, Schemes and Awards.

### UNIT - I

#### Indian Sports Culture

- 1.1 Philosophy of Sport Culture, Sports as a Cultural Heritage
- 1.2 History of Exercise and Sports Science in ancient India
- 1.3 Sports and Games in India during British period and after Independence, Regional Sports Culture in India
- 1.4 Ancient history of games and sports in different continents

### UNIT-II

#### Role of Sports Competition to Create Sports Culture

- 2.1 Impact of Community Sports and Local Sports Competition
- 2.2 Significance of School, College and University Sports Competition
- 2.3 Importance of National and International Sport Events
- 2.4 Influence of League Competition

### UNIT-III

#### **Origin of International and National Games and its organization and conduct role in Sports Culture Development**

- 3.1 Olympic Games and Commonwealth Games: Values and Culture
- 3.2 Asian Games and SAF Games: Values and Culture
- 3.3 Major Sports International, World Competitions and Championship, World University Games
- 3.4 National Games, Khelo India, All India University Games, SGFI, Rural Sports in India and Major National Sports Events and League etc.

### UNIT-IV

#### **Sports Associations, Institutions, Schemes and Awards in India: Social impact**

- 4.1 Ministry of Youth Affairs and Sports and its Schemes, Sports Authority of India, NSNIS, National Sports University, LNIPE, NADA, NDTL, NYK
- 4.2 Indian Olympic Association – Objectives Structure and Functions, State Sports Association/Sports Academy: Objective Structure and function,
- 4.3 Corporate Sports Promotion. School, College and University Sports Culture
- 4.4 National, State and Sports Awards: Individual and Institutional, Financial scheme and support etc.

#### **SUGGESTED READING**

1. Deshpande S. H., Physical Education in Ancient India, Bharatya Vidya Prakashan, 1992.
2. Khan, Eraj Ahmed. History of Physical Education, Patna: Scientific Book Co.
3. Leonard, Fred Eugene and Affleck George B. Guide to The History of Physical Education, Philadelphia Leo &Febiger, 1962.
4. Majumdar D.C. Encyclopedia of India Physical Culture Baroda Good Companions, 1952.
5. Rajgopalan K. A. Brief History of Physical Education in India, Delhi Army Publisher 1962.
6. Rice Emmett, A. Hutchinson John L. and Lee Marbal A. Brief History of Physical Education. New York: The Ronald Press Co. 1960.
7. Singh Ajmer, et al. Modern Text Book of Physical Education Health & Sports, Kalyani Publisher.
8. Mondal S, Science of Exercise: Ancient Indian Origin, Journal of the Association of Physician of India, 2013.

**SEMESTER - I**  
**ANATOMY AND PHYSIOLOGY**  
**COURSE CODE: BSC/CC/102**

| Course Code          | Course Name            | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|----------------------|------------------------|--------|----------------|----------------|----------------|-------------|
| <b>THEORY COURSE</b> |                        |        |                |                |                |             |
| BSC/CC/102           | Anatomy and Physiology | 3      | 48             | 30             | 45             | 75          |

**COURSE LEARNING OUTCOME**

- Understand the Need and importance of anatomy and physiology in the field of physical education.
- To know the structure and function of cell and tissue and muscular system
- To understand classification of bone and joints.
- To understand circulatory and respiratory system, digestive and endocrine system, excretory and nervous system.

**UNIT – I**

**Introduction of Anatomy & Physiology**

- 1.1 Meaning, Definition, Need and importance of anatomy and Physiology in the field of physical Education and Sports science
- 1.2 Skeletal System, Classification of Bones, Function of bones, Types of Joints, Classification of joints and their functions.
- 1.3 Definition, Structure and Function of the Cell,
- 1.4 Tissue: Types and structure of Tissues, Organs and systems

**UNIT – II**

**Introduction of Muscular and Nervous System**

- 2.1 Muscular System: Gross Anatomy of Skeletal Muscles.
- 2.2 Types of Muscles and Muscle Contraction, Group action in skeletal muscles
- 2.3 Motor unit, functional types of skeletal muscles, muscles metabolism and fatigue
- 2.4 Nervous system: Central Nervous System, Peripheral Nervous Systems, function of nervous system.

**UNIT-III**

**Cardiovascular and Respiratory System**

- 3.1 Heart: its structure and function, Systemic and pulmonary circulatory system
- 3.2 Cardiac Cycle, Stroke volume, Cardiac output and Blood Pressure
- 3.3 Respiratory System: lungs, Respiratory tract, Mechanism of Respiration (internal and external respiration)
- 3.4 Exchanges of gases, Ventilation and lungs volumes, Pulmonary Volumes and Vital Capacity

**UNIT – IV**

- 4.1 Digestive System: Structure and Function
- 4.2 Endocrine System: Structure and Function
- 4.3 Excretory System: Structure and Function
- 4.4 Reproductive System: Structure and Function

## Practical

### Anatomy and Physiology Course CODE: BSC/CC (P)/102

| Course Code          | Course Name          | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|----------------------|----------------------|--------|----------------|----------------|----------------|-------------|
| <b>LAB PRACTICAL</b> |                      |        |                |                |                |             |
| BSC/CC(P)/102        | Anatomy & Physiology | 1      | 32             | 10             | 15             | 25          |

### UNIT-I

- 1.1 Demonstration of cell, tissue, major muscles(origin and insertion) through video
- 1.2 Identification of human bones, Joints and its explanation by the students
- 1.3 Measurement of BP, resting heart rate and exercise heart rate
- 1.4 Measurement of Lungs volumes and Capacities

### UNIT-II

- 2.1 Video presentation of digestive system and its explanation by the students
- 2.2 Video Presentation of endocrine gland its explanation by the students
- 2.3 Video Presentation of Kidney and urinary tract and its explanation by the students
- 2.4 Video Presentation of human Brain and its explanation by the students

### SUGGESTED READINGS

1. Chaurasia B.D (2020) B D Chaurasias Handbook of General Anatomy, 6<sup>th</sup> edition, CBS Publisher.
2. Dr. A. Chandra Sekhar (2014) Handbook of Anatomy & Physiology, All India Publishers & Distributors; 2ndEdition
3. Elaine Marieb and Suzanne Keller (2017) Essentials of Human Anatomy & Physiology, Global Edition, Publisher-Pearson; 12th edition.
4. Fredric H. Martini, Michael J. Timmons Human Anatomy Prentice Hall, New Zealand 2000.
5. Garg K. (2020) Essentials of Anatomy and Physiology for GNM with Clinical Importance, Publisher - CBSNursing.
6. Jamet Parker The Human Body Atlas Om Books Publication Comp. Inc. 2006.
7. Ken Ashwell The Student Anatomy of Exercise Manual MedTechan Imprint of Scientific International Pvt. Ltd., Australia 2012.
9. Moorthy, A. M. (2014). Anatomy physiology and health education. Karaikudi: Madalayam Publications.
10. Richard L. Drake Grays Anatomy for Students Elsevier Churchill Livingstone Comp. Inc., Philadelphia 2005.
12. Gerard J. Tortora and Bryan H. Derrickson (2017) "Tortora's Principles of Anatomy and Physiology" Publisher: Wiley ;15th edition.
13. G.L. Khanna (2016) Exercise Physiology and Nutrition, Friends Publications (India); First edition.

## SEMESTER - I

### HISTORICAL DEVELOPMENT AND ORGANIZATIONAL STRUCTURE: Athletics

COURSE CODE: BSC/CC/103A

| CourseCode           | Course Name  | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|----------------------|--|--------|----------------|----------------|----------------|-------------|
| <b>THEORY COURSE</b> |  |        |                |                |                |             |
| BSC/CC/103A          | Historical Development and Organizational Structure: Athletics | 3      | 48             | 30             | 45             | 75          |

#### COURSE LEARNING OUTCOME:

After completing this course, the students will be able to

- Acquire knowledge of IAAF general rules, its implications and interpretation.
- Fundamentals of track and field events
- Athletic development programme, marking and layouts and officiating.
- Importance of conditioning for fitness, warm-up, and limbering down.

#### UNIT – I

##### Introduction to Athletics

- 1.1 History of Athletics in India and world
- 1.2 Modern Olympic Games and World Championships in Athletics.
- 1.3 IAAF
- 1.4 Athletic Federation of India AIF

#### UNIT – II

##### Historical Development of Athletics Coaching

- 2.1 Historical development of Sport Coaching in India
- 2.2 Historical development of Athletic Coaching in India
- 2.3 Establishment of different State Athletic Association and their affiliation with Federation
- 2.4 Contribution different clubs and association towards the development of Athletics before and after independence

#### UNIT – III

##### Standard Athletic Synthetic Track

- 3.1 Athletic Stadium and modern facility to organize National and International Competition
- 3.2 IAAF 400 m standard track, marking plan
- 3.3 Jumping events dimension and Structure
- 3.4 Throwing events dimension and structure

#### UNIT – IV

##### Organization of Athletic meet

- 4.1 Organizational structure of National and International Athletic meet.
- 4.2 Opening and closing ceremony protocol.
- 4.3 Order of events in athletic meet.
- 4.4 Responsibility of Competition Director, Track and Field officials.

**SEMESTER - I**  
**INTRODUCTION TO INFORMATION TECHNOLOGY IN SPORTS**  
**COURSE CODE: BSC/GE/01**

| Course Code          | Course Name                                      | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|----------------------|--|--------|----------------|----------------|----------------|-------------|
| <b>THEORY COURSE</b> |  |        |                |                |                |             |
| BSC/GE/01            | Introduction to Information Technology in Sports | 2      | 32             | 20             | 30             | 50          |

**COURSE LEARNING OUTCOME**

**After completing this course, the students will be able to**

- Understanding the Concept of Information & Communication and Implement various scientific teaching aids
- Understand the versatile facilities on internet for source of knowledge
- Utilize the various modern Gadgets in sports

**COURSE CONTENTS**

**UNIT - I**

**Introduction to Information & Communication Technology**

- 1.1 Concept, Importance, Meaning & Nature of Information & Communication Technology.
- 1.2 Need of Information & Communication Technology in Physical Education; Scope of ICT in Education & Sport.
- 1.3 Teaching Learning Process, Publication, Evaluation, Research Administration.
- 1.4 Paradigm shift in Education due to ICT content with special reference to Curriculum.

**UNIT-II**

**Introduction to Internet Browsing**

- 2.1. Internet: Evolution, Protocols, Interlace Concepts, Growth of Internet, ISP; Internet Vs. Intranet.
- 2.2. Application. E-Mail: Concepts, POP and WEB Based E-mail, merits, address, Basics of sending & Receiving, E-mail Protocols, Mailing List, Free E-mail services.
- 2.3. Telnet Concept, Remote Logging, Protocols, Terminal Emulation. Message Board, Internet chatting voice chat text chat.
- 2.4. WORLD WIDE WEB (WWW) –History, working web browsers, its functions, concept of search Engines, Searching the Web, HTTP, URLs, Web Servers, Web; Protocols.

**UNIT – III**

**Modern Gadget and Technologies in Sports**

- 3.1. Introduction to sports gadgets and technologies.
- 3.2. Sports Gadgets: Heart Rate Monitor; Polar watches; Heddoko – Uniforms with sensors; Myovolt pads for sports therapy
- 3.3. Sports Technologies: Hawk-Eye Technology; Stump Camera in cricket; Goal Line Technology in Soccer; Radar Gun technology in Tennis
- 3.4 Information Technology-enhancing sports performance and maintenance.

## PRACTICAL

### Introduction to Information Technology in Sports

Course Code: BSC/GE (P)/01

|              |  |   |    |    |    |    |
|--------------|--|---|----|----|----|----|
| BSC/GE(P)/01 | Introduction to Information Technology in Sports | 1 | 32 | 10 | 15 | 25 |
|--------------|--|---|----|----|----|----|

#### Unit -I

- 1.1. Basic Operation of Computers
- 1.2. Microsoft Office
- 1.3 Designing of own small apps and create new competence through available Software.
- 1.4 Access to Sports Analytics and Technology

#### UNIT -II

- 2.1. Demonstration of various Sports Analytical Software.
- 2.2. Demonstration of Hawk eye technology with computer analysis, Goalline technology analysis, Computerized sports performance analysis
- 2.3. IT technology in Video Analysis and Photo Analysis
- 2.4. Demonstration of designing techniques, tactics and strategies through software.

#### Suggested Reading

1. Irtegov, D. (2004). Operating system fundamentals. Firewall Media.
2. Marilyn, M. & Roberta, B. (n.d.). Computers in your future. 2nd edition, India: Prentice Hall. Milke, M. (2007). Absolute beginner's guide to computer basics. Pearson Education Asia. Sinha, P. K. & Sinha, P. (n.d.). Computer fundamentals. 4th edition, BPB Publication.
3. P.M. Heathcote (2000), 'A' Level Computing (4th ed), Payne-Gallway Publishers Ltd ISBN 1-903112-2
4. P.M. Heathcote (2000), 'A' Level ICT (2nd ed), Payne-Gallway Publishers Ltd ISBN 0-9532490-8-5
5. Tudor Dorothy and Tudor Ian (1997), Business Systems Development, NCC Education Services Limited ISBN 1-90234-305-0

## SEMESTER - I

### ENGLISH (MODERN INDIAN LANGUAGES)

Course CODE: BSC/AECC/01

| Course Code          | Course Name                       | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|----------------------|-----------------------------------|--------|----------------|----------------|----------------|-------------|
| <b>THEORY COURSE</b> |                                   |        |                |                |                |             |
| BSC/AECC/01          | English (Modern Indian Languages) | 2      | 32             | 20             | 30             | 50          |

### COURSE LEARNING OUTCOME

After completing this course, the students will be able to

- Have an appreciable understanding of English grammar.
- Produce grammatically and idiomatically correct spoken and written discourse.
- Spot language errors and correct them.

#### UNIT-I

##### Parts of Speech

- 1.1 Nouns - different types; Pronoun - different types, Verbs – Tense - Concord - types of verbs
- 1.2 Adjectives – different types; Adverbs - different types, Prepositions - different types
- 1.3 Conjunctions - subordinating and coordinating
- 1.4 Determinatives articles - possessives - quantifiers

#### UNIT-II

##### Structure of English

- 2.1 Phrases - various types of phrases, Clauses - main and subordinate clauses
- 2.2 Basic sentence patterns in English - constituents of sentences, Complement – adverbials
- 2.3 Basic sentence patterns in English - various types of sentences – simple – compound – complex – declaratives – interrogatives – imperatives – exclamatory.
- 2.4 Analysis and conversion of sentences – Active to Passive and vice versa – Direct to Indirect and vice versa.

#### UNIT-III

##### Composition

- 3.1 Written Composition – Letter writing, Written Composition – Précis writing
- 3.2 Written Composition – Outline story, Written Composition - Expansion of proverb
- 3.3 Written Composition - Short essay
- 3.4 Written Composition – Email / Resume writing

### SUGGESTED READINGS:

1. Wren and Martin's High School English Grammar & Composition. S.Chand Publishing, 2018.
2. Cuttis, Martin. (2010) Oxford Guide to Plain English. Oxford University Press.

## SEMESTER – I

### GENERAL CONDITIONING AND PERFORMANCE – I: ATHLETICS

Course Code: BSC/CCP/104A

|                  |  |   |     |    |    |     |
|------------------|--|---|-----|----|----|-----|
| BSC/CCP/<br>104A | General Conditioning and<br>Performance – I: Athletics | 4 | 128 | 50 | 50 | 100 |
|------------------|--|---|-----|----|----|-----|

#### COURSE LEARNING OUTCOMES:

After completing this course, the students will be able to

- Understand general, specific and cool down exercises
- Understand physical fitness test of different components
- Understand weight training equipment required for athletics
- Understand general weight training exercises

#### UNIT-I

##### General warming-up, Specific warm-up and cooling down exercises

- 1.1 General and specific warming-up exercises.
- 1.2 Warming up for a specific training session and before the Athletics competition
- 1.3 Cooling down exercises after a specific training session.
- 1.4 Organization of warming up and cooling down exercises.

#### UNIT-II

##### Physical Fitness Test (Strength, speed, endurance, flexibility and co-ordination)

- 2.1 Speed test- 30-meter dash/ 50-meter dash.
- 2.2 Agility test- Shuttle run/ Burpee test.
- 2.3 Flexibility test- Sit and reach test/Scott and French test.
- 2.4 Coopers 12 minutes run and walk test.

#### UNIT-III

##### Weight training equipment

- 3.1 Modern weight training equipment and its set and repetition system.
- 3.2 Free weights, single station Gym and Malty gym
- 3.3 Various types of freehand exercises for development of strength
- 3.4 Medicine ball exercises

## UNIT-IV

### Weight training exercises

4.1 General weight training exercises for shoulder and arm

4.2 Weight training exercises for chest

4.3 Weight training exercises for back

4.4. Weight training exercises for lower extremities

### Evaluation Total Mark 100

| Evaluation criteria                                 | Internal Assessment | External Assessment |
|---|---------------------|---------------------|
| Physical Fitness test<br>All the fitness components | 25 Marks            | 25 marks            |
| Sports Performance                                  | 25 marks            | 25 marks            |
| Total   | 50 Marks            | 50 Marks            |



## SEMESTER - I

### PRACTICAL: ATHLETICS

Course Code: BSC/CCP/ 105A

|                  |                      |   |     |    |    |     |
|------------------|----------------------|---|-----|----|----|-----|
| BSC/CCP/<br>105A | Practical: Athletics | 6 | 192 | 75 | 75 | 150 |
|------------------|----------------------|---|-----|----|----|-----|

#### Course Learning Outcomes

After completing this course, the students will be able to

- To understand 200 and 400 mt track marking
- Precaution and equipment required for track and field events marking
- To understand Jumping and throwing event marking
- To improve officiating ability of jumping and throwing events

#### Unit-I

##### Fundamentals of track marking

- 1.1 Fundamentals of Track marking
- 1.2 Procedure of 200 mt. track marking
- 1.3 Throwing events marking Procedure
- 1.4 Discuss, shot put, Javelin and Hammer throw

#### Unit-II

##### 400 m and Jumping events marking

2.1. Total area and equipment required for 400 mtr track marking, precaution to be taken for track Marking.

- 2.2. Procedure of 400 m track marking
- 2.3 Jumping event marking procedure
- 2.4 long jump and triple jump pit

#### UNIT-III

##### Skill practice

- 3.1. Indoor athletic track and its events
- 3.2. Officiating procedure of Indoor events
- 3.3 Basic Skill practice of long jump
- 3.4. Basic Skill practice of triple jump

## UNIT-4

### Skill Practice

- 4.1. Basic Skill practice of shot put
- 4.2. Basic Skill Practice of Discuss
- 4.3. Basic skill of Javelin throw
- 4.4. Basic skill of Hammer throw

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## SEMESTER – II

| Course Code             | Course Name  | Credit    | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------------------|--|-----------|----------------|----------------|----------------|-------------|
| <b>THEORY</b>           |  |           |                |                |                |             |
| BSC/CC/201              | Kinesiology and Biomechanics                         | 3         | 48             | 30             | 45             | 75          |
| BSC/CC/202              | Introduction to Bio-Chemistry                        | 2         | 32             | 20             | 30             | 50          |
| BSC/CC/203A             | Rules, Regulations and Interpretation: Athletics     | 3         | 48             | 30             | 45             | 75          |
| BSC/GE/02               | Communication Skill (English)                        | 2         | 32             | 20             | 30             | 50          |
| BSC/AECC /02            | Environmental Science                                | 2         | 32             | 20             | 30             | 50          |
| <b>LAB PRACTICAL</b>    |  |           |                |                |                |             |
| BSC/CC(P)/201           | Kinesiology and Biomechanics                         | 1         | 32             | 10             | 15             | 25          |
| BSC/CC(P)/202           | Introduction to Bio-Chemistry                        | 1         | 32             | 10             | 15             | 25          |
| BSC/GE(P)/02            | Communication Skill (English)                        | 1         | 32             | 10             | 15             | 25          |
| BSC/AECC(P)/02          | Disaster Management                                  | 1         | 32             | -              | -              | -           |
| <b>SPORTS PRACTICAL</b> |  |           |                |                |                |             |
| BSC/CCP/204A            | General Conditioning and Performance – II: Athletics | 4         | 128            | 50             | 50             | 100         |
| BSC/CCP/205A            | Practical: Athletics                                 | 6         | 192            | 75             | 75             | 150         |
| <b>TOTAL</b>            |  | <b>25</b> | <b>608</b>     | <b>275</b>     | <b>350</b>     | <b>625</b>  |

NCC is compulsory for all students in first year.

NB: CC= Core Course, AECC=Ability Enhancement compulsory course,DSC= Discipline Specific Course, GE=Generic Elective, SECC= Skill Enhancement core course, CCP= Core course practical

## SEMESTER – II

### KINESIOLOGY AND BIOMECHANICS

COURSE CODE: BSC/CC/201

| Course Code | Course Name                  | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|------------------------------|--------|----------------|----------------|----------------|-------------|
| BSC/CC/201  | Kinesiology and Biomechanics | 3      | 48             | 30             | 45             | 75          |

#### Course LEARNING OUTCOMES

After completing this course, the students will be able to

- Understanding the concept of kinesiology and biomechanics
- Understanding the classification and fundamental movements
- Describing the concept of kinetics and kinematics
- Kinesiological and biomechanical Analysis of the locomotion of movements

#### COURSE CONTENTS

##### UNIT - I

#### Introduction to Kinesiology

- 1.1 Definition, Aims and Objectives of Kinesiology and sports Biomechanics
- 1.2 Role of Kinesiology and biomechanics in Sports.
- 1.3 Brief history with important contributions of Aristotle, Leonard Da Vinci, Weber brothers
- 1.4 Basic Concepts of Axes and Planes, Center of Gravity&Line of Gravity

##### UNIT-II

#### Joints and Movements (Upper Extremity and Lower Extremity)

- 2.1 Location and action of major muscles acting at the following joints:  
(Shoulder, Elbow, Wrist, Hip, Knee & Ankle
- 2.2. Fundamental Movements of Human Body)
- 2.3 Two-joint muscles ( Origin , Insertion and Function)
- 2.4 All or None Law , Reciprocal Innervations,

##### UNIT-III

#### Application of Mechanical Concepts

- 3.1 Quantities in biomechanics, Scalar and vector quantities, Motion, type of motion, Distance and speed, Displacement and velocity, Acceleration, Angular distance and Angular displacement, Angular Speed, Angular Velocity, Angular Acceleration, Inertia, mass, weight, Newton's Laws of motion.
- 3.2 Work, Power & Energy, potential and kinetic energy.
- 3.3 Force and its characteristics, Internal and external forces and application of force, centripetal and centrifugal forces

3.4 Stability and Equilibrium ( Nature , Types and Advantages), factors affecting stability, principles of stability, Lever: Types and Implications in Sports, mechanical advantages of levers

#### UNIT -IV

#### Projectile motion, Kinesiological and mechanical analysis of movements

- 4.1 Kinesiological analysis of fundamental movements
- 4.2 Motion, its importance in sports with reference to Diving , Gymnastics, Jumping & Throwing
- 4.3 Projectile Motion : Principles, Factors affecting Projectile Motion and it's Applications in Sport
- 4.4 Mechanical Analysis of Fundamental Movements : (Walking, Running, Jumping, Throwing, Catching, Landing)

#### LAB PRACTICAL

#### Kinesiology and Biomechanics

Course CODE: BSC/CC (P)/201

#### UNIT-I

- 1.1. Demonstration of fundamental movements with reference to Axis and planes
- 1.2. Calculation of Center of Gravity, Segmentation Method
- 1.3. Motion Analysis of Sports Skill (Videography)
- 1.4. Demonstration and analysis of projectile motion

#### UNIT-II

- 2.1. Mechanical analysis of fundamental movements with Kinovia soft ware
- 2.2. The use of videography in recording sports movements
- 2.3. Recording the movement and Experimental procedures
- 2.4. Maintaining a practical record book

#### SUGGESTED READING

1. A.K. Lawrence Mamta MP *Kinesiology* (Friends Publication India 2004)  
Broer, M.R. *Efficiency of Human Movement* (Philadelphia : W.B. Saunders Co., 1966)
2. Bartlett Roger, *An introduction to sports Biomechanics, Analysing Human Movement Pattern*, Rouledge, 2007.
3. Bunn, John W. *Scientific Principles of Coaching* (Engle wood cliffs : N.J. Prentice Hall Inc., 1966)  
Duvall, E.N. *Kinesiology* (Engle wood cliffs : N.J. Prentice Hall Inc., 1956)
4. Hoffman S.J. *Introduction to Kinesiology* (Human Kinesiology publication In. 2005 Uppal
5. Rasch and Burke, *Kinesiology and Applied Anatomy* (Philadelphia : Lea and Fibger, 1967) Scott, M. G. *Analysis of Human Motion*, New York.
6. Wells, K. P. *Kinesiology* (Philadelphia : W.B. Saunders Co. 1966) Cooper, John M. and Glassgow, R.B. *Kinesiology* (St. Louis : C.V. Mosby Co., 1963)

**SEMESTER - II**  
**INTRODUCTION TO BIO-CHEMISTRY**  
**COURSE CODE: BSC/CC/202**

| Course Code | Course Name                   | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|-------------------------------|--------|----------------|----------------|----------------|-------------|
| BSC/CC/202  | Introduction to Bio-Chemistry | 2      | 32             | 20             | 30             | 50          |

**COURSE LEARNING OUTCOMES**

**After completing this course, the students will be able to**

- Understand the concept of exercise & sports biochemistry
- Understand the concept of metabolism during different types of sports & exercise
- Understand the energy system Phosphagen System, Anaerobic System, Aerobic System
- Understand the various biochemical parameters used to monitor the sports training

**UNIT - I**

**INTRODUCTION TO BIOCHEMISTRY AND ENERGETICS**

- 1.1 Concept of Exercise and sports biochemistry
- 1.2 Importance of Sports and Exercise Biochemistry
- 1.3 Biochemical Concepts - Organization of matter, Chemical bonding, Chemical Reactions
- 1.4 Muscle Contractile Elements in Muscle, Process of Muscle Contraction, Energy for Muscle Contraction  
ATP the energy currency

**UNIT- II**

**BIOENERGETICS AND FUNDAMENTALS OF EXERCISE BIOCHEMISTRY**

- 2.1 Meaning and definition of Metabolism, Anabolic and Catabolic processes, Fundamentals of Bio-Energetics, Energy systems – Phosphagen System, Anaerobic System, Aerobic System
- 2.2 Brief overview on- Carbohydrate metabolism, Carbohydrates: Basics of Carbohydrate Metabolism, Regulation of glycogen metabolism,
- 2.3 Lipid metabolism: definition, classifications and general functions; Introduction to essential fatty acids, cholesterol, Blood lipids, brief review of lipoproteins.
- 2.4 Proteins: definition, classification and Biomedical Importance, Plasma Proteins and functions

## UNIT- III

### Biochemical aspects of exercise

3.1 Introduction to investigations related to Basics of routine Bio-chemical tests for Physiological functions i.e., Lipid Profile, Blood Urea, Blood Urea Nitrogen (BUN), Serum Creatinine, Serum Uric Acid with estimation of Urinal Protein and CP Kinase, Glucose.

3.2 Fundamentals of Acid base balance and its regulations during exercise.

3.3 Immune system and exercise, Classification and biochemical structure of immunoglobulins with functions

3.4 Overview of Sports anemia in athletes.

### PRACTICAL

#### Introduction to Bio-Chemistry

Course CODE: BSC/CC (P)/202

| Course Code   | Course Name                   | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|---------------|-------------------------------|--------|----------------|----------------|----------------|-------------|
| BSC/CC(P)/202 | Introduction to Bio-Chemistry | 1      | 32             | 10             | 15             | 25          |

### UNIT-I

1.1. Introduction to basic biochemical lab equipment

1.2 Laboratory safety and procedures

1.3. Microscopic study of cell

1.4 Urinal Protein and General urine analysis

### UNIT-II

2.1. Estimation of hemoglobin and Blood cells

2.2. Lipid Profile

2.3. Urea and Uric acid

2.4 Glucose

### SUGGESTED READINGS

1. American College of Sports Medicine (2010). Guidelines for Exercise Testing and Prescription (8th Edition). Lippincott Williams & Wilkins, Philadelphia.
2. McCardle, W.D., Katch, F.I. & Katch, V.L. (2007). Exercise Physiology. Energy, Nutrition and Human Performance (6th Edition). Lippincott Williams & Wilkins, Baltimore.
3. Vassilis Mougios. Exercise Biochemistry (2006). Human Kinetics.
4. Wilmore, J.H. & Costill, D.L (2008). Physiology of Sport and Exercise (4th Edition). Human Kinetics, Champaign, IL.

**SEMESTER – II**  
**RULES, REGULATIONS AND INTERPRETATION: Athletics**

**Course CODE: BSC/CC/203A**

| <b>Course Code</b> | <b>Course Name</b>                               | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|--------------------|--|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| BSC/CC/203         | Rules, Regulations and Interpretation: Athletics | 3             | 48                    | 30                    | 45                    | 75                 |

**COURSE LEARNING OUTCOME:**

**After completing this course, the students will be able to**

- Characterize Sprinters, Long jumpers, Shot-putters, and Race walkers
- Analyze the technique and apply scientific principle for training
- Track teaching progression of techniques
- Detect fault, reason and its correction

**UNIT - I**

**Sprints and Middle and Long Distance Runners**

- 1.1 All sprint events rules
- 1.2 Rules of Middle distance run
- 1.3 Rules of long distance run
- 1.4 Rules of Decathlon and Heptathlon

**UNIT - II**

**Rules and Regulations of Jumping Events**

- 2.1 Long jump rules and their interpretation
- 2.2 High jump rules and their interpretation
- 2.3 Triple jump and pole vault rules and their interpretation
- 2.4 Tie break in jumping events

## UNIT - III

### Rules and Regulations of Throwing Events

- 3.1. Shut put rules and their interpretation
- 3.2. Discuss rules and their interpretation
- 3.3. Javelin rules and their interpretation
- 3.4. Hammer throw rules and their interpretation

## UNIT - IV

### Race Walks and Hurdles Rules

- 4.1. Rules of race walk events
- 4.2. Rules of Hurdles events and their interpretation
- 4.3. Rules of steeple chase events
- 4.4. Rules of Relay races



**SEMESTER –II**  
**COMMUNICATION SKILL (English)**  
**COURSE CODE: BSC/GE/02**

| Course Code | Course Name                   | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|-------------------------------|--------|----------------|----------------|----------------|-------------|
| BSC/GE/02   | Communication Skill (English) | 2      | 32             | 20             | 30             | 50          |

**COURSE LEARNING OUTCOMES**

**After completing this course, the students will be able to**

- Understand Types and process of communication, Verbal and Non-verbal Communication
- Know about the Language Skill in relation to sports
- Understand the Oral Communication Skill in relation to sports

**UNIT-I**

**Communication: An Introduction**

1.1 Introduction to communication: Process of Communication; Differences between Technical and General Communication; Barriers to Communication; Measures to Overcome the Barriers to Communication.

1.2 Types of Communication: Types of Communication; Verbal Communication-Importance of verbal communication- Advantages of verbal communication- Advantages of written communication; Significance of Non-verbal Communication

1.3 Communication in Organizations: Internal Communication; Stake Holders in Internal Communication; Channels of Internal Communication; External Communication; Stake Holders in External Communication; Channels of External Communication.

1.4 Non-Verbal Communication: Personal Appearance; Gestures, Postures, Types of Body Language, Facial Expression; Eye Contacts; Time language; Silence

**UNIT-II**

**LANGUAGE SKILLS**

2.1: Listening skills: Hearing and listening; importance of listening skills, listening practice.

2.2: Speaking skills: Importance of speaking skills; Pronunciation; fluency; speaking practice.

2.3: Reading skills: sub-skills of reading; effective reading; reading practice.

2.4: Writing skills: types of writing; General Principles of Writing; Improving Writing Skills, Essentials of good style.

**UNIT - III**

**Oral Communication Skills**

3.1 Presentation Literacy: foundation; ideas; tools.

3.2 Presentation Literacy: process; on stage.

3.3 Speaking effectively: basic skills; developing confidence.

3.4 Speaking effectively: subject; audience.

### Practical

#### Communication Skill (English)

Course CODE: BSC/GE(P)/02

| Course Code  | Course Name                   | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|--------------|-------------------------------|--------|----------------|----------------|----------------|-------------|
| BSC/GE(P)/02 | Communication Skill (English) | 1      | 32             | 10             | 15             | 25          |

### UNIT-I

#### 1.1 Effective Speaking Skills.

Practical: Ice-Breaking Activity and JAM Session- Situational Dialogues – Greetings – Taking Leave – Introducing Oneself and Others.

#### 1.2 Effective Communication strategies.

Practical: Situational Dialogues – Role-Play- Expressions in Various Situations –Making Requests and Seeking Permissions - Telephone Etiquette.

### UNIT-II

#### 2.1 Descriptions- Narrations- Giving Directions and Guidelines.

Practical: Giving Instructions – Seeking Clarifications – Asking for and Giving Directions – Thanking and Responding – Agreeing and Disagreeing – Seeking and Giving Advice – Making Suggestions.

#### 2.2. Public Speaking – Exposure to Structured Talks - Non-verbal Communication- Presentation Skills.

Practical: Making a Short Speech – Extempore- Making a Presentation.

#### 2.3. Group Discussion- Interview Skills.

Practical: Group Discussion- Mock Interviews.

### SUGGESTED READINGS

1. A.S. Hornby's. *Oxford Advanced Learners Dictionary of Current English*, 7<sup>th</sup> Edition
2. Bansal, R.K. and J.B. Harrison. *Spoken English*. Orient Language.
3. G.O.E. Lydall, *A practical Guide to précis Writing & indexing*. London: Macdonald & Evans Ltd. (1955)
4. John Elisson Kahn, D. Phil., *How to write & speak better English*.
5. Prasad, P. *Communication Skills*. S.K. Kataria& Sons.
6. R.C. Sharma, Krishna Mohan. *Business Correspondence and Report Writing*.
7. Sen, Leena. *Communication Skills*. Prentice Hall of India, New Delhi.
8. Sethi, J & et al. *A Practice Course in English Pronunciation*. Prentice Hall of India, New Delhi.

**SEMESTER – II**  
**ENVIRONMENTAL SCIENCE**  
**COURSE CODE: BSC/AECC/02**

| Course Code | Course Name           | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|-----------------------|--------|----------------|----------------|----------------|-------------|
| BSC/AECC/02 | Environmental Science | 2      | 32             | 20             | 30             | 50          |

**COURSE LEARNING OUTCOMES**

**After completing this course, the students will be able to**

- Understand the scope, importance, eco system and renewable and non-renewable resources
- Understand the Biodiversity, Conservation and Environmental Pollution and Management
- Understand Environmental Policies, Practices and Human Communities & Environment

**Unit-I**

**Introduction to Environmental Studies, Ecosystems & Natural Resources: Renewable and Non-renewable Resources**

- 1.1 Scope and importance of Environmental Science; Concept of sustainability and sustainable development, Environmental Sustainability in Sports.
- 1.2 Ecosystem and its structure and function; Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies of the following ecosystems: a) Forest ecosystem b) Grassland ecosystem c) Desert ecosystem d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)
- 1.3 Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.
- 1.4 Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state). And Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.

**Unit-II**

**Biodiversity, Conservation and Environmental Pollution and Management**

- 2.1 Level and Values of Biodiversity; Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity; Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.
- 2.2 Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution and nuclear hazards and human health risks
- 2.3 Solid waste management: Control measures of urban and industrial waste.
- 2.4 Plastic pollution: Pollution case studies and report.

### Unit-III

#### Environmental Policies, Practices and Human Communities & Environment

- 3.1 Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture
- 3.2 Human population growth: Impacts on environment, human health and welfare.
- 3.3 Environmental movements: Chipko, Silent valley, Bishnois of Rajasthan.
- 3.4 Environmental communication and public awareness, case studies and report.

#### SUGGESTED READING

1. A.C. Pandey (2014). *Frontiers in Environmental Research, Academic Excellence*, India.
2. Agrawal, K. C. (2001). *Environmental biology*. Bikaner: Nidhi publishers Ltd.
3. Gupta (2001) *Methods in Environmental Analysis, Water, Soil and Air*, AGROBIOS (India).
4. Hofrichter, R. (ed.) *Toxic Struggle: The Theory and Practice of Environmental Justice*. Philadelphia: New Society Publishers.
5. K. Glaz, B.K. Rimer, K. Viswanath (2008). *Healthy Behavior and Healthy Education* (4<sup>th</sup> edition). Jossey-Bass A Wileyimprint.
6. K. Tones, Y.K. Robinson"s, S. Tilfor (2013). *Health Education*, Springer.
7. L.B. Lave, E.P. Seskin (2013). *Air Pollution and Human Health*, Ref. Press, New York. P.K.
8. Lancaster, R. N. and Leonardo, M. (eds.) 1997. *The Gender /Sexuality Reader: Culture, History, Political Economy*. New York: Routledge. 10
9. P. Elliot, J.C. Wakefield, N.G. Best, D.J. Biggs (2000). *Spatial Epidemiology: Methods and Application*.
10. Park J.E. & Park K. (2002). *Textbook of preventive and social medicine*. Jabalpur: Banarasi Das Bhanot Publication.
11. Shiva, V. 1989. *Staying Alive: Women, Ecology and Development*. London: Zed Books.
12. Stein, R. 2004. *New Perspective on Environmental Justice: Gender, Sexuality and Activism*. New Jersey: Rutgers University Press.
13. UGC (2005). *Textbook of Environmental Studies*, University Press.
14. UNDP: Human Development Report (2000) New Delhi: OUP.
15. W.P. Cummingham, B.W. Saigo (2001). *A Global Concern*, Cummingham.
16. WHO (2006). *Preventing diseases through healthy environment*.

**Semester – II**  
**Practical**  
**Disaster Management**  
**Course Code: BSC/AECC(P)/02**

| Course Code    | Course Name         | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|----------------|---------------------|--------|----------------|----------------|----------------|-------------|
| BSC/AECC(P)/02 | Disaster Management | 0      | 0              | 0              | 0              | 0           |

**Unit – I**

**Natural disaster**

- 1.1.Land disaster
- 1.2.Water disaster
- 1.3.Mountain disaster
- 1.4.Sea disaster

**Men Made Disaster**

- 2.1. Chemical disaster
- 2.2. Mechanical and Technical disaster
- 2.3. Structural disaster
- 2.4. Nuclear disaster



## SEMESTER – II

### GENERAL CONDITIONING AND PERFORMANCE – II: ATHLETICS

#### COURSE CODE: BSC/CCP/204A

| Course Code  | Course Name   | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|--------------|---|--------|----------------|----------------|----------------|-------------|
| BSC/CCP/204A | General Conditioning and Performance – II Athletics | 4      | 128            | 50             | 50             | 100         |

#### Course learning outcomes:

- Understand different types of endurance test in athletics
- Ability to take specific warming up exercises class
- Organizing conditioning classes
- Ability to design conditioning classes for various age group

#### UNIT-I

##### Different endurance test in Athletics.

- 1.1. 12 minutes run and walk test
- 1.2. One mile run test
- 1.3. Harvard step test
- 1.4. 2.4 km run test

#### UNIT-II

##### Endurance training in athletics

- 2.1 Basic endurance training model
- 2.2. Continues training model
- 2.3 Interval training model
- 2.4. Combination of continues and interval training model

#### UNIT-III

##### Muscular endurance

- 3.1 muscular endurance exercises without weight training exercises
- 3.2 Exercises with own body weight
- 3.3 Muscular endurance training for novice, Intermediate and advance level athletes
- 3.4 Muscular endurance exercises with set, repetition, intensity and muscular endurance test

#### UNIT-IV

##### Organizing the conditioning classes

- 4.1 Learning Ability to take General and specific warm-up class
- 4.2. Conditioning Class organization, formation and control
- 4.3. Ability to take conditioning class for different athletes
- 4.4. Ability to design various conditioning classes for various age group

### Evaluation Total Mark 100

| Evaluation criteria                                 | Internal Assessment | External Assessment |
|---|---------------------|---------------------|
| Physical Fitness test<br>All the fitness components | 15 Marks            | 15 Marks            |
| Sports Performance                                  | 15 Marks            | 15 Marks            |
| Warming Up and cool down<br>class Proficiency       | 10 Marks            | 10 Marks            |
| Conditioning class<br>proficiency                   | 10 Marks            | 10 Marks            |
| Total   | 50 Marks            | 50 Marks            |



## Semester – II

### PRACTICAL: ATHLETICS

Course Code: BSC/CCP/205A

| Course Code  | Course Name | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|--------------|-------------|--------|----------------|----------------|----------------|-------------|
| BSC/CCP/205A | Athletics   | 6      | 192            | 75             | 75             | 150         |

#### Course Learning Outcomes:

- Understand the techniques of sprint events
- Understand the teaching progression and techniques of long jump
- Understand the teaching progression and techniques of shot put
- Understand the teaching progression and techniques of race walk
- Understand the fault, reasons and corrections of sprint, long jump, shot put and race walk techniques

#### UNIT-I

##### Sprint, middle and long distance techniques

- 1.1. Teaching Progression of Technique of Sprint, middle and long distance events
- 1.2. Applied Scientific principle of Sprints, middle and long distance running
- 1.3. Fault, Reasons & Correction of Sprints, middle and long distance running
- 1.4. Finishing technique of sprint events

#### UNIT-II

##### Long jump Techniques

- 2.1 Teaching Progression of Technique of Long Jump
- 2.2 Applied scientific principle of Long Jump
- 2.3 Fault, Reasons & Correction of Long Jump technique
- 2.4 skill practice of long jump

#### UNIT-III

##### Shot put Techniques

- 3.1. Teaching Progression of Technique of Shot put
- 3.2 Applied scientific principle of Shot put
- 3.3 Fault, Reasons & Correction of Shot Put technique
- 3.4 skill practice of shot put

#### UNIT-IV

##### Race walk Techniques

- 4.1. Teaching Progression of Technique of Race walk
- 4.2 Applied scientific principle of Race walk
- 4.3 Fault, Reasons & Correction of Race walk technique
- 4.4 Skill practice of race walk



## Evaluation Total Mark 150

| Evaluation criteria                | Internal Assessment | External Assessment |
|------------------------------------|---------------------|---------------------|
| Skill proficiency                  | 20Marks             | 20Marks             |
| Fault correction and training plan | 20 marks            | 20 marks            |
| Officiating Proficiency            | 20 Marks            | 20 Marks            |
| Record book and Viva               | 15 Marks            | 15 Marks            |
| Total                              | 75 Marks            | 75 Marks            |

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### SEMESTER– III

| Course Code             | Course Name   | Credit    | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------------------|---|-----------|----------------|----------------|----------------|-------------|
| <b>THEORY</b>           |   |           |                |                |                |             |
| BSC/CC/301              | Fundamentals of Psychology and Sociology              | 2         | 32             | 20             | 30             | 50          |
| BSC/CC/302              | Applied Exercise and Sports Physiology                | 2         | 32             | 20             | 30             | 50          |
| BSC/CC/303A             | Technique and Technical Development: Athletics        | 3         | 48             | 30             | 45             | 75          |
| BSC/SECC/01             | Science of Sports Training and Conditioning           | 3         | 48             | 30             | 45             | 75          |
| BSC/GE/03               | Traditional Sports and Games                          | 2         | 32             | 20             | 30             | 50          |
| <b>LAB PRACTICAL</b>    |   |           |                |                |                |             |
| BSC/CC(P)/301           | Fundamental of Psychology and Sociology               | 1         | 32             | 10             | 15             | 25          |
| BSC/CC(P)/302           | Applied Exercise and Sports Physiology                | 1         | 32             | 10             | 15             | 25          |
| BSC/GE(P)/03            | Traditional Sports and Games                          | 1         | 32             | 10             | 15             | 25          |
| <b>SPORTS PRACTICAL</b> |   |           |                |                |                |             |
| BSC/CCP/304A            | General Conditioning and Performance – III: Athletics | 4         | 128            | 50             | 50             | 100         |
| BSC/CCP/305A            | Practical: Athletics                                  | 6         | 192            | 75             | 75             | 150         |
| <b>TOTAL</b>            |   | <b>25</b> | <b>608</b>     | <b>275</b>     | <b>350</b>     | <b>625</b>  |

**NSS is compulsory for all students in second year.**

NB: CC= Core Course, AECC=Ability Enhancement compulsory course,DSC= Discipline Specific Course, GE=Generic Elective, SECC= Skill Enhancement core course, CCP= Core course practical,

**SEMESTER– III**  
**FUNDAMENTALS OF PSYCHOLOGY AND SOCIOLOGY**  
**COURSE CODE – BSC/CC/301**

| Course Code   | Course Name                              | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|---------------|--|--------|----------------|----------------|----------------|-------------|
| <b>THEORY</b> |  |        |                |                |                |             |
| BSC/CC/301    | Fundamentals of Psychology and Sociology | 2      | 32             | 20             | 30             | 50          |

**COURSE LEARNING OUTCOMES**

**After completing this course, the students will be able to:**

- Understand the Basic Concepts of Sports Psychology
- Understand how sports environment and group process influence performance
- Understand the sociological issues for optimizing behavior and performance

**UNIT-I**

**Basic Concepts of Psychology of Sports**

- 1.1 Introduction to Sports Psychology: Definition, History and understanding present and future trends.
- 1.2 Personality and Sports: Defining personality and understanding personality structure
- 1.3 Motivation and Emotions: Definition, developing achievement motivation and positive emotions.
- 1.4 Arousal, Stress and Anxiety: Definition, identifying sources of stress and anxiety, connecting arousal and anxiety to performance.

**UNIT-II**

**Sports Environment and Group Process**

- 2.1 Sports Environment and Group Process, Competition and Cooperation: Definition, viewing competition as a process, enhancing cooperation
- 2.2. Group and Team Dynamics: Differences between groups and teams, group development, creating effective team climate.
- 2.3 Group Cohesion: Definition, relationship between cohesion and performance, enhancing cohesion.
- 2.4 Leadership and Communication: Definition, effective leadership, understanding communication process.

**UNIT-III**

**Sports and Society:**

- 3.1 Development of sociability through Sports and development of sociability to enhancement sports performance
- 3.2 Creation of social acceptance of Sports in Society, Development of athlete's identity as the role model in the society
- 3.3 Role of Family, Institution, and peer group/fan club in developing sports culture, ethical values and code of conduct for players, coaches and spectators
- 3.4 Gender equity in sports, sports and violence (players and spectators)

**PRACTICAL**  
**FUNDAMENTALS OF PSYCHOLOGY AND SOCIOLOGY**

**Course CODE: BSC/CC(P)/301**

| Course Code         | Course Name                             | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|---------------------|---|--------|----------------|----------------|----------------|-------------|
| <b>LABPRACTICAL</b> |   |        |                |                |                |             |
| BSC/CC(P)/301       | Fundamental of Psychology and Sociology | 1      | 32             | 10             | 15             | 25          |

**UNIT-I**

- 1.1. Reaction time and Bio Feedback technique: Profile assessment of an athlete.
- 1.2. Color Progressive Matrices
- 1.3 Depth perception, Finger dexterity, Concentration, Anticipation test: demonstration and performing on an athlete.
- 1.4. Memory test, Achievement motivation test, Sheldon's Personality Test, Big Five Personality test: interpretation in relation to Sports.

**UNIT-II**

- 2.1. Assessment of Leadership quality and cohesiveness
- 2.2. Sociometry
- 2.3. Social Facilitation: Assessment of Audience effect in Sports.
- 2.4. The student will take Psycho-Social Project in their respective Sports/Games

**SUGGESTED READING**

1. Ball, D. W. & Loy, J. W. (1975). Sport and social order; Contribution to the sociology of sport. London: Addison Wesley Publishing Co., Inc.
2. Blair, J. & Simpson, R. (1962). Educational psychology, New York: McMillan Co. Cratty, B. J. (1968). Psychology and physical activity. Eaglewood Cliffs. Prentice Hall.
3. Kamlesh, M. L. (1998). Psychology in physical education and sport. New Delhi: Metropolitan Book Co.
4. Loy, J. W., Kenyon, G. S. & McPherson, B. D. (1978). Sports and social system. London: Addison Wesley Publishing Company Inc.
5. Loy, J. W., Kenyon, G. S. & McPherson, B. D. (1981). Sports culture and society. Philadelphia: Lea & Febiger.
6. Mathur, S.S., (1962). Educational psychology. Agra. Vinod Pustak Mandir. Skinner, C. E., (1984). Education psychology. New Delhi: Prentice Hall of India.
7. William, F. O. & Meyer, F. N. (1979). A handbook of sociology. New Delhi: Eurasia Publishing House Pvt Ltd.
8. Ball, Donald, W. and Lay John W. Sport and Social order Contribution to the Sociology of Sport.
9. Lea & Febiger, (1981).
10. Loy John W., Mepheron, Barry D., and Kenyon Gerall, Sport and Social System (London: Addition Wesley Publishing Co. Inc., 1978).
11. Loy, Jhon W., Kenyon, Geral S. and Mopherson, Barry D., Sports Culture and society (Philadelphia: London: Addition Wesley Publishing Co. Inc., 1975).

**SEMESTER – III**  
**APPLIED EXERCISE AND SPORT PHYSIOLOGY**  
**COURSE CODE: BSC/CC/302**

| Course Code   | Course Name                            | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|---------------|--|--------|----------------|----------------|----------------|-------------|
| <b>THEORY</b> |  |        |                |                |                |             |
| BSC/CC/302    | Applied Exercise and Sports Physiology | 2      | 32             | 20             | 30             | 50          |

**LEARNING OUTCOMES**

**After completing this course, the students will be able to:**

- Understand about the exercise physiology and its role in sports.
- Understand the muscles adaptation with various training load.
- Understand the effect of exercise on circulatory and respiratory system.
- Understand hot and humid temperature and sports performance, High altitude training and sports performance.

**COURSE CONTENTS**

**UNIT-I**

**Exercise and Bioenergetics**

- 1.1 Meaning, Definition and its application of exercise and sports physiology in health fitness and sports performance
- 1.2 Bioenergetics and exercise metabolism; Measurement of energy expenditure in various activity
- 1.3 Aerobic and Anaerobic metabolism during exercise and training
- 1.4 Physiological basis of training related to specific sports, Assessment of aerobic and anaerobic capacity and its interpretation of data (Project based learning).

**UNIT-II**

**Muscular System**

- 2.1 Theories of muscular contraction and sliding filament theory, Neural control of muscular activity
- 2.2 Effect of exercise and training on muscular system
- 2.3 Physiology of Fatigue, Over training and Recovery
- 2.4 Development and determination of muscle strength, Assessment of muscular strength, collection and interpretation of data.

**UNIT-III**

**Conditioning and Training on circulatory and respiratory Systems**

- 3.1 Cardiac Cycle, Stroke Volume, Cardiac Output, factors affecting heart rate and Cardiac Hypertrophy.
- 3.2 Effect of Exercises and training on the Cardio vascular system.
- 3.3 Mechanism of Breathing, Respiratory muscles, Minute ventilation, Diffusion of gases, Oxygen Debt, Lung Volumes and Capacities, Second Wind.
- 3.4 Effects of exercises and training on respiratory system.

## UNIT-IV

### **Exercise and Sport Physiology and Performance**

4.1 Immune system and sports performance

4.2 Growth and development, maturity of sports person, Genetic and sports performance

4.3 Exercise and Neuro endocrine system

4.4 Hormonal response and adaptation to exercise



## PRACTICAL

### Applied Exercise and Sports Physiology

COURSECODE: BSC/CC(P)/302

| Course Code  | Course Name                            | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|--------------|--|--------|----------------|----------------|----------------|-------------|
| BSCCC(P)/302 | Applied Exercise and Sports Physiology | 1      | 32             | 10             | 15             | 25          |

#### UNIT-I

- 1.1 Recording of Resting, Exercise and Recovery Heart rate and Blood pressure, its interpretation and designing specific training protocol  
Video presentation and analysis of Physiological system, its interpretation and designing specific training protocol
- 1.2 Anthropometric measurement and Body Composition assessment, its interpretation and designing specific training protocol,
- 1.3 Measurements of Lungfunction, its interpretation and designing specific training protocol
- 1.4 Assessment of Cardiovascular System by Harvard Step Test, Cooper's Test, Beep Test and PWC 170.

#### UNIT-II

- 2.1 Recording of Resting, Exercise and Recovery Heart rate and Blood pressure, its interpretation and designing specific training protocol
- 2.2 Aerobic and Anaerobic Capacity measurement, its interpretation and designing specific training protocol
- 2.3 Measurement and analysis of lactic acid and heart rate in field, temperature (Dry, wet, and globe temperature) and its interpretation designing specific training protocol as a projectwork
- 2.4 Hypoxic training in Hypoxic chamber/Altitude

#### REFERENCE

1. Astrand, P.O. and Rodahi.K. Text Book of Work physiology.Tokye: Mc. Graw – Hill Kogakusha, Ltd. 1970).
2. Bourne, Geoffey H. The Structure and Function of Muscles: (London: Academic Press, 1973).
3. Guyton, Arthur C. Test Book of Medical Physiology (Philadelphia: W.B. Saunder company, 1978).
4. Karporich, P.V. and Sining. Wayne E. Physiology and Muscular Activity (Philadelphia: W.B. Saunder company, 1971), 7thEdn.
6. Mathew, D.K. and Fox. E.L., Physiological Basis of Physical Education and Athletics. (Philadelphia: W.B. Saunder company, 1976).
8. Morehouse, L.E and Miller, A.T. Physiology of Exercise (saint Louis: The C.V. Mosby Co. 1976). 7thEdn.

## SEMESTER – III

### TECHNIQUES AND TECHNICAL DEVELOPMENT: Athletics

#### COURSE CODE: BSC/CC/303A

| Course Code | Course Name                                     | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|---|--------|----------------|----------------|----------------|-------------|
| BSC/CC/303A | Techniques And Technical Development: Athletics | 3      | 48             | 30             | 45             | 75          |

#### ESSENCE OF THE COURSE

The course will enable students by introducing and briefing high jump, discuss throw, hurdles and relay race. This will include the statistical information, characteristics, teaching progression of techniques, analysis to technique and correction of their fault by knowing their reasons.

#### COURSE LEARNING OUTCOME:

After completing this course, the students will be able to

- Characterize High jump, Discus throw, Hurdles and Relay race
- Analyze the technique and apply scientific principle for training
- Track teaching progression of techniques
- Detect fault, reason and its correction

#### UNIT - I

##### High Jump

- 1.1 High jump technique Scissor jump, Fosbury flop
- 1.2 Statistical Information & Characteristics of Jumpers
- 1.3 Teaching progression of Technique & Mechanical Analysis of Technique
- 1.4 Faults- reasons-corrections-video analysis of approach run, take off and technique

#### UNIT - II

##### Discus Throw

- 2.1 Discuss throw technique (Wind, Pivot, step across the circle, turn phase and release)
- 2.2 Statistical Information & Characteristics of Jumpers
- 2.3 Teaching progression of Technique & Mechanical Analysis of Technique
- 2.4 Faults- reasons-corrections-video analysis of approach run, take off and skill

## UNIT - III

### Hurdles

- 3.1 Preparatory phase, Force production phase, critical instant phase, follow through phase
- 3.2 Statistical Information & Characteristics of Jumpers
- 3.3 Teaching progression of Technique & Mechanical Analysis of Technique
- 3.4 Faults- reasons-corrections-video analysis of skill

## UNIT - IV

### 4 Relay races

- 4.1 Batten passing in relay (Upsweep, down sweep and puss pass techniques)
- 4.2 Acceleration zone, Change over zone and various relay drills
- 4.3 Teaching progression of Technique & Analysis of Technique
- 4.4 Faults- reasons-corrections-video analysis of skill



## SEMESTER –III

### SCIENCE OF SPORTS TRAINING AND CONDITIONING

#### COURSE CODE: BSC/SECC/01

| Course Code | Course Name                                 | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|---|--------|----------------|----------------|----------------|-------------|
| BSC/SECC/01 | Science of Sports Training and Conditioning | 3      | 48             | 30             | 45             | 75          |

#### COURSE LEARNING OUTCOME

After completing this course, the students will able to

- Understand the concept, means and methods of Sport Training and Conditioning.
- Equip to formulate and design training as per the pre-requisites of training components.
- Understand the technique and tactical preparation in particular Sports/Games.
- Understand the concept of planning and periodization of pre-requisites of competition demands.

#### UNIT – I

##### Introduction & Training means and methods

- 1.1. Definition, Aim and Principles of Sports Training
- 1.2. Characteristics of Sports Training, volume, intensity, density and frequency
- 1.3. Definition, importance, Types of Overload.
- 1.4. Principles of overload, causes& characteristics of fatigue, Tackling overload

#### UNIT - II

##### Training Component

- 2.1 Strength: Types, means and methods of developing strength, scientific basis of designing strength training
- 2.2 Speed - Forms of speed, means and methods of developing speed, scientific basis of designing speed training
- 2.3 Endurance and its types, means and methods of endurance training, scientific basis of designing endurance training
- 2.4 Coordination and Flexibility and its types, means and methods of development coordination and flexibility, scientific basis of designing co-ordination and flexibility training

## UNIT – III

### Technique, Tactics, Strategies

- 3.1 Meaning of Technique, Tactics, and Strategies, Difference between Technique, tactics, and strategies
- 3.2 Technique and phase of technical training related to specific sport and games
- 3.3 Tactical training and strategies planning related to specific sport and games
- 3.4 Application of technique, tactics, and strategies related to specific sport and games

## UNIT – IV

### Planning & Periodization

- 4.1 Definition, Importance and Types of Planning
- 4.2 Principles of Planning and Steps in Formulation of Plan, scientific basis of designing planning related specific sport and games
- 4.3 Concept and types of Periodization
- 4.4 Top form and scientific basis of designing Periodization related to specific sport and games

### SUGGESTED READING

1. Bompa O. Tudor and Halff G. Gregory. (2009) “Periodization Theory and Methodology of Training” Human kinetics.
2. Bompa O. Tudor, (2021) Periodization of Strength Training for Sports, Human Kinetics.
3. Bill Sweetenham and John Atkinson, (2003) Championship Swim Training, Human Kinetics.
4. Bill Ramseyer, (2011) Winning football, Human Kinetics.
5. David Joyce and Daniel Lewindon (2021) High-Performance Training for Sports, Human Kinetics.
6. Giam, C. K & The, K.C. ( 1994). Sport medicine exercise and fitness. Singapore: P.G.
7. Kurz Thomas and Mikolaj Zagorski (2001), Science of Sports Training, Stadion Publishing Co.,
8. Lorin A. Cartwright and William A. Pitney, (2021) Fundamentals of Athletes Training, Human Kinetics; Third edition.
9. Matvyew, L. P. (1981). Fundamental of sports training. Moscow: Progress Publishers
10. National Academy of Sports Medicine, (2014) NASM Essentials of Sports Performance Training, Jones and Bartlett Learning.
11. Singh, H. (1984). Sports training, general theory and methods. Patiala: NSNIS.
12. Uppal, A. K., (1999). Sports Training. New Delhi: Friends Publication.
13. Visual coaching pro software

## SEMESTER –III

### TRADITIONAL SPORTS AND GAMES

Course CODE: BSC/GE/03

| Course Code | Course Name                  | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|------------------------------|--------|----------------|----------------|----------------|-------------|
| BSC/GE/03   | Traditional Sports and Games | 2      | 32             | 20             | 30             | 50          |

#### Course learning outcomes:

After completing this course, the students will able to

- Know different kind of traditional sports and games
- Understand Historical development of traditional sports and games in India
- Understand importance of traditional sports and games
- Understand the social value of traditional sports and games

#### Unit-I

##### Introduction to Traditional Sports and Games

- 1.1 Need, Scope and benefits of Traditional Sports and Games in present days
- 1.2 Importance of Indian (Bharatiya) Tradition: Indian dance, music, exercise and Bharatiyama initiative
- 1.3 UNESCO: Intangible Cultural Heritage-Traditional Sports and Games (TSG)
- 1.4 International Council of Traditional Sports and Games: cultural values and activities for preservation and protection

#### Unit-II

##### Historical Development of Sports and Games

- 2.1. History of Traditional exercises, Sports and Games in ancient India and their origin.
- 2.2. Traditional exercise, Sports and Games in North East India.
- 2.3. Traditional Sports and Games in Central and South India.
- 2.4. Traditional Sports and Games in North and West India

#### Unit-III

##### Traditional Sports and Modern Olympics Sports

- 3.1. Traditional Sports and Games and its social and cultural values; Khelo India and Fit India initiative
- 3.2. Traditional Sports and Games as a tool for intercultural learning and physical literacy
- 3.3. Traditional Games as a recreational activity in active living and wellness
- 3.4. Impact of Traditional sports and games in skill enhancement of modern Olympic sports

**PRACTICAL**  
**Traditional Sports and Games**  
**Course CODE: BSC/GE(P)/03**

| Course Code   | Course Name                  | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|---------------|------------------------------|--------|----------------|----------------|----------------|-------------|
| BSC/GE/(P)/03 | Traditional Sports and Games | 2      | 32             | 20             | 30             | 50          |

**UNIT-I**

**Critical analysis of transfer of motor qualities and skill acquisition**

- 1.1.Traditional exercises and sports of North East India, related to specific sports
- 1.2.Traditional exercises and sports of Central and South India, related to specific sports
- 1.3.Traditional exercises and sports of North and West India, related to specific sports
- 1.4.Traditional exercises and Sports from different parts of the World

**UNIT-II**

**Physical fitness and sports skill acquisition through traditional sports**

- 2.1. Traditional wrestling in India
- 2.2.Thang-Ta, Mukna and Kang.
- 2.3.Mallakhambh and Gatka
- 2.4. Kalaripayattu and Circle Kho-Kho, Raibansa

**SUGGESTED READING:**

1. [www.unesco.org](http://www.unesco.org) : Traditional Games and Sports (TSG)
2. [www.tafisa.org](http://www.tafisa.org)
3. [Encyclopaedia of Traditional Games](#), Gremese International; 192nd ed. edition (1 March 1995)
4. [Traditional Games, Sports Publication \(1 December 2015\)](#)
5. [www.mallakhambindia.com](http://www.mallakhambindia.com)
6. Rath. ShyamSundar, Martial Arts A critical Analysis of Orissa, Kalpaz Publisher, New Delhi, 2005.
7. L. Kokngang, Thang- Ta, 2008
8. KonjengbamBiren Singh, Meitei HuyenLanlong, Manipur State Kala Academy, 1985.
9. [sgfibharat.com/images/stories/RULES/Rules\\_Thangta.pdf](http://sgfibharat.com/images/stories/RULES/Rules_Thangta.pdf)
10. <https://www.keralatourism.org/kalaripayattu/origin>
11. <https://gatkaa.com>
12. <https://themanipurpage.tripod.com/culture/thangta.html>
13. [blog.globalindianschool.org](http://blog.globalindianschool.org)
14. [www.sportanddev.org](http://www.sportanddev.org)
15. [www.chaseyoursport.com](http://www.chaseyoursport.com)

## SEMESTER – III

### GENERAL CONDITIONING AND PERFORMANCE – III: ATHLETICS

COURSE CODE: BSC/CCP/ 304A

| Course Code      | Course Name  | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|------------------|--|--------|----------------|----------------|----------------|-------------|
| BSC/CCP/304<br>A | General Conditioning and<br>Performance – III: Athletics | 4      | 128            | 50             | 50             | 100         |

#### Learning Outcomes:

- The students will able to understand basic speed and advance speed training
- Practically involved various speed training exercises
- Understand basic and advanced explosive strength training exercises
- Practically involved with various explosive strength training exercises

#### Unit –I

##### Basic Speed training in athletics

- 1.1. Warm up, Resistance band exercises,
- 1.2. Sprints, sled and pulls and pushes
- 1.3. Squat, jumping ropes
- 1.4. Sprint drills

#### Unit-II

##### Advance speed training

- 2.1 Quickness and acceleration/ deceleration training
- 2.2. Top end speed training
- 2.3. Speed endurance Training
- 2.4. Running down hill

#### UNIT-III

##### Basic Explosive strength development

- 3.1. Weighted step up exercises,
- 3.2. Overhead walking lunges exercises
- 3.3. Sprints
- 3.4. Speed ladder drills

## UNIT-IV

### Advance explosive strength development

4.1. Weighted dynamic step up exercises and training

4.2. Plyometric

4.3 Weight training with higher velocity

4.4. Variable Resistance training (Bands and chains), Ballistic exercises

### Evaluation Total Mark 100

| Evaluation criteria   | Internal Assessment | External Assessment |
|---|---------------------|---------------------|
| Physical Fitness test and performance<br>All the fitness components | 30 Marks (15+15)    | 30 Marks (15+15)    |
| Speed training exercise   | 10 Marks            | 15 Marks            |
| Explosive strength training exercise                                | 10 Marks            | 10 Marks            |
| Total   | 50 Marks            | 50 Marks            |



**Semester – III**

**PRACTICAL: ATHLETICS**

**COURSE CODE: BSC/CCP/ 305A**

| <b>Course Code</b> | <b>Course Name</b>   | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|--------------------|----------------------|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| BSC/CCP/305<br>A   | Practical: Athletics | 6             | 192                   | 75                    | 75                    | 150                |

Course Learning Outcomes:

- Understand the teaching progression and Technique of High Jump
- Understand the teaching progression and Technique of Discuss
- Understand the teaching progression and Technique of Hurdles
- Understand the teaching progression and Technique of Relay race
- Understand the fault, reason and correction of all mentioned techniques

**UNIT-I**

**High Jump Technique**

- 1.1. Teaching progression of Technique of High Jump
- 1.2. Applied Scientific principles of High Jump
- 1.3. Fault, Reason and Correction of High Jump
- 1.4. Officiating of High jump

**UNIT-II**

**Discuss Technique**

- 2.1. Teaching progression of Technique of Discuss
- 2.2. Applied Scientific principles of Discus throw
- 2.3. Fault, Reason and Correction of Discus throw
- 2.4. Officiating of Discus throw

**UNIT-III**

**Hurdles Technique**

- 3.1. Teaching progression of Technique of Hurdles
- 3.2. Applied scientific principles of Hurdles
- 3.3. Fault, Reason and Correction of Hurdles
- 3.4 Officiating of Hurdles

## UNIT-IV

### Relay Race Technique

- 4.1. Teaching progression of Technique of Relay Race
- 4.2. Applied scientific principles of Relay Race
- 4.3. Fault, Reason and Correction of Relay Race
- 4.4 Officiating of Relay Race

#### Evaluation Total Mark 150

| Evaluation criteria                      | Internal Assessment | External Assessment |
|--|---------------------|---------------------|
| Skill proficiency with technical aspects | 25Marks             | 25Marks             |
| Fault correction and training plan       | 20 marks            | 20 marks            |
| Officiating Proficiency of the events    | 20 Marks            | 20 Marks            |
| Record book and Viva                     | 10 Marks            | 10 Marks            |
| Total                                    | 75 Marks            | 75 Marks            |

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**SEMESTER –IV**

| Course Code             | Course Name  | Credit    | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------------------|--|-----------|----------------|----------------|----------------|-------------|
| <b>THEORY</b>           |  |           |                |                |                |             |
| BSC/CC/401              | Applied Sports Psychology                                  | 2         | 32             | 20             | 30             | 50          |
| BSC/CC/402              | Sports Medicine  | 3         | 48             | 30             | 45             | 75          |
| BSC/CC/403A             | Tactics , Strategies , and Tactical Development: Athletics | 3         | 48             | 30             | 45             | 75          |
| BSC/SECC/02             | Kinanthropometry and Talent development in Sports          | 2         | 32             | 20             | 30             | 50          |
| BSC/GE/04               | Adapted Sports Education                                   | 2         | 32             | 20             | 30             | 50          |
| <b>LAB PRACTICAL</b>    |  |           |                |                |                |             |
| BSC/CC(P)/401           | Applied Sport Psychology                                   | 1         | 32             | 10             | 15             | 25          |
| BSC/CC(P)/402           | Sports Medicine  | 1         | 32             | 10             | 15             | 25          |
| BSC/GE(P)/04            | Adapted Sports Education                                   | 1         | 32             | 10             | 15             | 25          |
| <b>SPORTS PRACTICAL</b> |  |           |                |                |                |             |
| BSC/CCP/404A            | General Conditioning and Performance – IV: Athletics       | 4         | 128            | 50             | 50             | 100         |
| BSC/CCP/405A            | Practical: Athletics                                       | 6         | 192            | 75             | 75             | 150         |
| <b>TOTAL</b>            |  | <b>25</b> | <b>608</b>     | <b>275</b>     | <b>350</b>     | <b>625</b>  |

**NSS is compulsory for all students in second year.**

NB: CC= Core Course, AECC=Ability Enhancement compulsory course,DSC= Discipline Specific Course, GE=Generic Elective, SECC= Skill Enhancement core course, CCP= Core course practical

## SEMESTER –IV

### APPLIED SPORTS PSYCHOLOGY

COURSE CODE: BSC/CC/401

| Course Code | Course Name               | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|---------------------------|--------|----------------|----------------|----------------|-------------|
| BSC/CC/401  | Applied Sports Psychology | 2      | 32             | 20             | 30             | 50          |

#### LEARNING OBJECTIVE:

After completing this course, the students will able to

- Understand how to enhance psychological skills in sport and physical activity.
- Know how to develop mental skills in sports
- How to use sports and physical activity to enhance well-being of athletes

#### UNIT-I

##### Enhancing Psychological Skills

- 1.1. Introduction to mental training: Psychological factors and performance excellence, developing mental skills.
- 1.2. Goal Setting: Effective goals, developing athlete's goal setting skills
- 1.3. Imagery and Self-Talk: Using imagery effectively, developing imagery training program, developing athletes' smart-talk skills.
- 1.4. Concept of Biofeedback, uses and importance in Sports.

#### UNIT-II

##### Developing Mental Skills

- 2.1 Motivation: Needs and intrinsic motivation, creating mastery-oriented motivational atmosphere.
- 2.2 Attention and Self-Confidence: Attentional capacity, selective attention, implementing attentional skills program.
- 2.3 Stress Management: Understanding stress, stress management techniques, developing athletes' stress management skills.
- 2.4 Energy Management: understanding energy management, determining optimal energy zone, developing athletes' energy management skills.

#### UNIT-III

##### Enhancing Health and Well-Being

- 3.1 Physical activity and well-being: Exercise adherence, social-cognitive perspectives of perceived and sustained efforts.
- 3.2 Burnout in Sports: Burnout dropout, overtraining and staleness, monitoring burnout in athletes
- 3.3 Physical activity and quality of life: Meaning of Quality of life, Effect of physical activity and sports on quality of life.
- 3.4 Injury and Psychology: Stress and injury, role of sports psychology in injury rehabilitation.

## PRACTICAL

### Applied Sports Psychology

Course Code: BSC/CC(P)/401

| Course Code   | Course Name               | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|---------------|---------------------------|--------|----------------|----------------|----------------|-------------|
| BSC/CC(P)/401 | Applied Sports Psychology | 1      | 32             | 10             | 15             | 25          |

### UNIT-I

- 1.1 Assessment and development of Motivation and integration of motivation training in relation to specific sports coaching
- 1.2 Goal Setting: integration of goal setting training in relation to specific sports coaching
- 1.3 Stress Management, Relaxation Procedures, Biofeedback Training in relation to specific sports
- 1.4 Developing Schedule of Psychological Skill Training (PST) Programme in relation to specific sports

### UNIT-II

- 2.1 Relaxation Procedures – Progressive Relaxation – Autogenic Training, Transcendental Meditation.
- 2.2 Activation Techniques (Imagery, VMBR, HYPNOTHERAPY)
- 2.3 Cognitive Strategies: Imagery, Thought Stopping and Centering,
- 2.4 Development of verbal and non-verbal communications skill between athlete and coach

### SUGGESTED READING

1. Andersen, M. B. (Ed.). (2005). Sports psychology in practice. Human Kinetics.
2. Anshel, M.H.(2002). Sport Psychology: From Theory to Practice. Scottsdale, AZ: Gorsuch Scarbrick.
3. Blumenstein, B., Bar-Eli, M., & Tenenbaum, G. (Eds.) (2002). Brain and body in sport and exercise: Biofeedback applications in performance enhancement. Wiley Publishing, Inc.
4. Burton, Damon, Thomas D. Raedeke (2008) Sport Psychology for Coaches Human Kinetics Publishers, Champaign Illinois.
5. Burton, D., & Raedeke, T. (2008). Introduction to mental skills training. Sport psychology for coaches. Human Kinetics.
6. Cox, Richard H (2006) Sport Psychology Concept and Application, 3rd ed Wm.C. Brown Publishers.
7. Horn, Thelma (2008) Advances in Sport Psychology Human Kinetics Publishers, Inc Champaign IL.
8. Kamlesh, M.L. (2001) Psychology in Physical Education and Sport, 3rd ed. Metropolitan Book Co.Pvt.Ltd Delhi.
9. Tenenbaum, Gershon (2001) The Practice of Sport Psychology Fitness Information Technology, INC, US
10. Weinberg, R. S., & Gould, D. (2015). Foundations of Sport and Exercise Psychology (6th ed.). Human Kinetics.
11. Weinberg, R.S & Gould, Daniel (2012) Foundations of Sport and Exercise Psychology Human Kinetics Publishers, Inc Champaign IL.
12. Williams, J.M., & Krane, V. (2014). Applied Sport Psychology: From Personal Growth to Peak Performance (7th ed.). McGraw-Hill.

**SEMESTER –IV**  
**SPORTS MEDICINE**  
**COURSE CODE BSC/CC/402**

| Course Code | Course Name     | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|-----------------|--------|----------------|----------------|----------------|-------------|
| BSC/CC/402  | Sports Medicine | 3      | 48             | 30             | 45             | 75          |

**COURSE LEARNING OUTCOME**

After completing this course, the students will able to

- Understand history, scope and importance of sports medicine.
- Understand sports injuries related to skin, muscles, tendons, ligaments, cartilage and bones.
- Understand tissue respond to stress and different types of wound healing.
- Understand ill effect of different drugs and doping.

**COURSE CONTENTS**

**UNIT - I**

**Introduction to Sports Medicine**

- 1.1 History of Sports Medicine in India and Abroad
- 1.2 Definition, aims and objectives of Sports Medicine
- 1.3 Scope, Need and Importance of Sports Medicine in sports
- 1.4 Classification of sports Injuries, differences between acute and chronic injuries.

**UNIT - II**

**Injuries in Sports**

- 2.1 Skin and Muscles Injuries (blisters, corns, abrasions, bruises, burns, cuts and lacerations, muscles strain and ruptures)
- 2.2 Tendons Ligaments, Cartilage, bursa and bone Injuries
- 2.3 Common site-specific injuries in sports Common regional injuries and their management (Head & Neck, Face, Thorax, Abdomen, Pelvis, Upper Limbs and Lower Limbs (shoulder, elbow, Wrist, hip, knee and Ankle joints).

**UNIT – III**

**Injury and Tissue Response**

- 3.1 Micro and Macro trauma
- 3.2 Over use Trauma
- 3.3 Tissue response to stress
- 3.4 Different steps in wound healing

**UNIT – IV**

**Doping in Sports**

- 4.1 Ergogenic aids in Sports
- 4.2 National and International Anti-doping organization and their role
- 4.3 Classification and types of drugs banned by WADA, Side effects of drugs
- 4.4 Blood doping, Types of Blood Doping

## PRACTICAL

### Sports Medicine

Course CODE: BSC/CC(P)/402

| Course Code   | Course Name     | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|---------------|-----------------|--------|----------------|----------------|----------------|-------------|
| BSC/CC(P)/402 | Sports Medicine | 1      | 32             | 10             | 15             | 25          |

#### UNIT-I

- 1.1. Demonstrate how to set up an individual on a program for injury prevention or general fitness enhancement.
- 1.2. Describe and demonstrate the proper fit, care, and usage of sports protective equipment.
- 1.3. Common Rehabilitation exercises used in sports injury.
- 1.4. Strengthening and stretching of major muscles

#### UNIT-II

- 2.1. Arrangement of special lecturer on anti-doping rules
- 2.2. Demonstration and explanation of sample collection kit and procedure of sample collection
- 2.3. Explanation of Players form fill up procedure and checking shield equipment by an expert
- 2.4. Maintaining a practical record book

#### SUGGESTED READING

1. Andrew Pallas Beating Sports Injuries Mitchell Beazley (London) 2003.
2. Conley, M. (2000). Bioenergetics of exercise training. In T.R. Baechle, & R.W. Earle, (Eds.), Essentials of Strength Training and Conditioning (pp. 73-90). Champaign, IL: Human Kinetics.
3. David, R. M. (2005). Drugs in sports, (4th Ed). Routledge Taylor and Francis Group.
4. Ellis and Henderson Running Injury Free Rodal Press (Pennsylvania) 1994
5. Garick Webb Sports Injuries Diagnosis and Management W.B. Saunders Co. (London) 1990.
6. Jeyaprakash, C. S., Sports Medicine, J.P. Brothers Pub., New Delhi, 2003.
7. Khanna, G. L., (1990). Exercise physiology & sports medicine. Delhi: Lucky Enterprises. Mathew, D. K. & Fox, E. L, (1971). Physiological basis of physical education and athletics. Philadelphia: W.B. Saunders Co.
8. M.A. Hutson Sports Injuries Oxford University Press (New York) 1996.
9. Marcia K. Anderson and Malissa Martin Quick Reference Guide for Sports Injury Management Williams & Wilkins (London) 1998.
10. Martha Freeman Sonners Spinal Cord Injury Prentice Hall (New Jersey) 1992.
11. P.L. Karad Prevention and Treatment of Sports Injuries Khel Sahitya Kendra (New Delhi) 2011.
12. Pandey, P. K., (1987). Outline of sports medicine, New Delhi: J.P. Brothers Pub. Williams, J. G. P. (1962). Sports medicine. London: Edward Arnold Ltd.
13. Paul N. Taylor and Diane K. Taylor Conquering Athletic Injuries Human Kinetics (Canada) 1988.
14. Philip J. Morone Shoulder Injuries in Sports Aspen Publishers Inc. (London) 1992.
15. Robert Gunzburg and Marek Szpalski Whiplash Injuries Lippincott Williams & Wilkins (New York) 1998.
16. Terry R. Malone Throwing Injuries Williams & Wilkin

## SEMESTER –IV

### TACTICS, STRATEGIES AND TACTICAL DEVELOPMENT: Athletics

COURSE CODE: BSC/CC/403A

| Course Code | Course Name   | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|---|--------|----------------|----------------|----------------|-------------|
| BSC/CC/403A | Tactics, Strategies and Tactical Development: Athletics | 3      | 48             | 30             | 45             | 75          |

#### Learning Outcomes:

- Understand meaning and definition of tactics and strategies
- Understand tactical action and tactical training
- Understand tactical ability of an athlete
- Understand tactical application in different athletic events

#### UNIT- I

##### Introduction

- 1.1. Meaning and definition of tactics, strategies
- 1.2. Tactics in relation to technical efficiency, understanding and skill execution
- 1.3. Clarifying individual roles and identifying strength and weakness
- 1.4. Identifying strength and weakness of opponents

#### UNIT-II

##### Tactical action and tactical training

- 2.1. Meaning and definition of tactical action
- 2.2. Phases of Tactical action: Perception and analysis of competition situation, mental solution of the tactical task and Motor solution of the tactical task
- 2.3. Tactical training Preparation: Tactical knowledge, Tactical skill and tactical ability
- 2.4. Principle of tactical preparation in various athletic events

#### UNIT-III

##### Enhancement of Tactical ability

- 3.1. Tactical ability, Observation and perception of tactical task in athletic events
- 3.2 Providing competition like experience during practice
- 3.3 Creating a blue print of tactical option in various athletic events
- 3.4. New and unaccustomed situation and tactical evaluation

## UNIT-IV

### **Tactical Application in Athletics**

- 4.1. Application of tactics in individual events in athletics (running, Jumping and throwing events)
- 4.2. Application of tactics in team events in athletics (Relay race)
- 4.3. Application of Tactics in Hurdles and stipple chase events
- 4.4 Tactical application in Combined events



## SEMESTER –IV

### KINANTHROPOMETRY AND TALENT DEVELOPMENT IN SPORTS

COURSE CODE: BSC/SECC/02

| Course Code | Course Name                                       | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|---|--------|----------------|----------------|----------------|-------------|
| BSC/SECC/02 | Kinanthropometry and Talent Development in Sports | 2      | 32             | 20             | 30             | 50          |

#### COURSE LEARNING OUTCOME:

After completing this course, the students will be able to

- Understand the concept and techniques of Anthropometry and Kinanthropometry.
- Understand Anthropometry profiling and evaluation.
- Understand the talent identification.

#### COURSE CONTENTS

##### UNIT – I

#### Anthropometry and Kinanthropometry

- 1.1 Introduction of Anthropometry and Kinanthropometry and its importance in sports
- 1.2 Basic Anthropometric tools, measurements and landmarks, Applications of Kinanthropometry in sports.
- 1.3 Somatotypes/Body Types/Body Physique and its relevance in sports, Body composition and its importance in sports.
- 1.4 Human Growth and Development.

##### UNIT – II

#### Anthropometric Profiling and Evaluation

- 1.1 Assessment technique of Somatotyping / Body typing.
- 1.2 Assessment technique of Body composition.
- 1.3 Assessment technique of Skeletal Diameter (Body Breadth) and Body Girth (Body Circumference).
- 1.4 Evaluation of Body composition by BIA (Bio Impedance Analysis) Instrument.

##### UNIT – III

#### Sports Talent Identification and development

- 3.1 Need and Importance of Talent Identification
- 3.2 Principles of talent identification and development
- 3.3 Talent Identification in relevant Sports, Long Term Athlete Development
- 3.4 Global scenario of talent identification, selection and development in relevant sports

## SUGGESTED READING

1. Singh S.P.S. and Malhotra P (2003). *Anthropometry*. Human Biology Department. Punjabi University. Patiala-147 002 (India).
2. Pheasant, S. (1996). *Body space: anthropometry, ergonomics and design of work*. Taylor & Francis, New York.
3. Sodhi, H.S., & Sidhu, L.S. (1984). *Physique and selection of sports- a kinanthropometric study*. Patiala: Punjab Publishing House.



**SEMESTER – IV**  
**ADAPTED SPORTS EDUCATION**  
**COURSE CODE: BSC/GE/04**

| Course Code | Course Name              | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|--------------------------|--------|----------------|----------------|----------------|-------------|
| BSC/GE/04   | Adapted Sports Education | 2      | 32             | 20             | 30             | 50          |

**COURSE LEARNING OUTCOME**

After completing this course, the students will be able to

- Understand the modern concept of adapted sports education.
- Understand classification of differently abled people.
- Understand adapted Sports education programme.

**COURSE CONTENTS**

**UNIT-I**

**Introduction to adapted sports education**

- 1.1 Meaning, aim and objectives of adapted sports education
- 1.2 Brief historical review of adapted sports education
- 1.3 Need and importance of adapted sports education
- 1.4 Role of sports education in adapted sports education

**UNIT-II**

**Classification of differently able people**

- 2.1 Changing concept of differently able people.
- 2.2 Physically challenged, mentally challenged, Speech and Hearingchallenged and visually challenged.
- 2.3 Other Differently able Condition problems, Behavioral Problems-Adjustment Problem, learning disabilities, Emotional Problem.
- 2.4 Social Problem -Social Determination, Social Rejection

**UNIT-III**

**Adapted Sports Education Programme**

- 3.1. Guiding Principles for Adapted Sports Education Programme
- 3.2. Sports Programme for differently able students (Divyangjan)
- 3.3. Co-Curricular activities for differently ablestudents (Divyangjan)
- 3.4. Aquatic activity programmes for differently able; Rehabilitative role &importance of aquatic activity

**PRACTICAL**  
**Adapted Sports Education**  
**Course Code: BSC/GE(P)/04**

| Course Code  | Course Name              | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|--------------|--------------------------|--------|----------------|----------------|----------------|-------------|
| BSC/GE(P)/04 | Adapted Sports Education | 1      | 32             | 10             | 15             | 25          |

**Unit – I**

**Introduction of Specific Programmes for especially abled Child**

- 1.1. Adapted Exercise programme for visual impaired.
- 1.2. Adapted Exercise programme for hearing impaired.
- 1.3. Adapted Exercise programme for the people with upper body locomotor problem.
- 1.4. Adapted Exercise programme for the people with lower body locomotor problem.

**Unit – II**

**Introduction of Adapted Sports and its event**

- 2.1 Adapted Sports and its events programme for visual impaired.
- 2.2 Adapted Sports and its events programme for hearing impaired.
- 2.3 Adapted Sports and its events programme for the people with upper body locomotor problem.
- 2.4 Adapted Sports and its events programme for the people with lower body locomotor problem.

**SUGGESTED READINGS**

1. Anoop Jain, “Adapted Physical Education” Sports Publications, Ashok Vihar Delhi-52
2. Arthur G. Miller & James, “Teaching Physical Activities to impaired youth” John Wilag& Sons Inc. Canada.
3. Arthur S. Daniels & Euilya, “Adapted Physical Education”, Harpet& Row Publisher- New York.
4. Auxter, Byler, Howtting, “Adapted Physical Education and reactions” Morbey-St. Louis Missouri.
5. K. Park, “Preventive Social Medicine M/s BanaridasBhanot Publishers Prem Nagar Jabalpur. Ronald W. French, & Paul J., “Special Physical Education”, Charles E. Merrics Publishing Co.Edinburgh, Ohio.
6. Shekar KC, Adapted Physical Education(KhelSahitya Kendra: New Delhi)-2005
7. Winnick JP, Adapted Physical Education and sport Human Kinetics USA, 2005
8. Uppal, A. K. (1990). Physical fitness: how to develop. New Delhi: Friends Publication.

**Semester – IV**  
**GENERAL CONDITIONING AND PERFORMANCE – IV: ATHLETICS**  
**COURSE CODE: BSC/CCP/404A**

| Course Code      | Course Name  | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|------------------|--|--------|----------------|----------------|----------------|-------------|
| BSC/CCP/404<br>A | General Conditioning and Performance – IV: Athletics | 4      | 128            | 50             | 50             | 100         |

**UNIT-I**

**Basic coordination exercises**

- 1.1. Hand eye and leg eye coordination drills
- 1.2. Multi-directional forms of sprinting, jumping and skipping
- 1.3. Obstacle running (place hurdles directly on floor and have athlete run over them)
- 1.4. Jump rope and target exercises

**UNIT-II**

**Advanced agility and coordination exercise training**

- 2.1. K band jump training
- 2.2. Plyometric agility hurdles, box jumps
- 2.3. Vertimax agility training
- 2.4. Wide receiver drills and coordination skills, Dynamic rapid response ickey shuffle ladder sequence

**UNIT-III**

**Balance training exercises**

- 3.1. Single leg balancing games, Stabilization and control drills
- 3.2. Balance exercises on a low balance beam
- 3.3. Jump in place with 180 or 360 turns while in flight
- 3.4. Push-ups on a stability ball, Dynamic balance and balance recover

**UNIT-IV**

**Age specific Coordination training**

- 4.1. Design exercise programme for Age group 8-10
- 4.2. Design exercise programme for Age group 10-12
- 4.3. Design exercise programme for Age group 13-16
- 4.4. Coordination exercises for different abled person

**Evaluation Total Mark 100**

| Evaluation criteria                                 | Internal Assessment | External Assessment |
|---|---------------------|---------------------|
| Physical Fitness test<br>All the fitness components | 15 Marks            | 15 Marks            |
| Sports Performance                                  | 15 Marks            | 15 Marks            |
| Coordination and balance<br>exercises               | 10 Marks            | 10 Marks            |
| Record book and viva                                | 10 Marks            | 10 Marks            |
| Total   | 50 Marks            | 50 Marks            |



**Semester – IV**

**PRACTICAL: ATHLETICS**

**COURSE CODE: BSC/CCP/405A**

| <b>Course Code</b> | <b>Course Name</b>   | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|--------------------|----------------------|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| BSC/CCP/405<br>A   | Practical: Athletics | 6             | 192                   | 75                    | 75                    | 150                |

**UNIT - I**

**Triple Jump**

- 1.1 Acceleration drills, Takeoff and Hop drills, Step drills
- 1.2 Triple jump technique, teaching the start, takeoff and hop, step and jump techniques
- 1.3 Teaching progression of Technique & Mechanical Analysis of Technique
- 1.4 Faults- reasons-corrections-video analysis

**UNIT - II**

**Javelin throw**

- 2.1 Grip, carry, initial approach, Transition, withdrawal, cross step, penultimate stride, Final delivery/Release, Recovery
- 2.2 Techniques of javelin and practice (Grip, run up, throw, follow throw)
- 2.3 Teaching progression of Technique & Mechanical Analysis of Technique
- 2.4 Faults- reasons-corrections-video analysis

## UNIT - III

### Steeple chase

- 3.1 Winter hurdle drill, trail leg drill,
- 3.2 Techniques of steeple chase, stepping, Hurdling, water barrier technique
- 3.3 Teaching progression of Technique & Mechanical Analysis of Technique
- 3.4 Faults- reasons-corrections-video analysis

## UNIT - IV

### Middle and Long distances including Road races

- 4.1 Foot strikes to the ground, torso move, shoulder joint movement,
- 4.2. Movement economy, techniques, pelvic movement, over striding, bouncing and rotating
- 4.3 Analysis of Technique & Running strategies and tactics
- 4.4 Faults- reasons-corrections-video analysis

### Evaluation Total Mark 150

| Evaluation criteria                   | Internal Assessment | External Assessment |
|---------------------------------------|---------------------|---------------------|
| Skill proficiency                     | 20Marks             | 20Marks             |
| Fault correction and training plan    | 20 marks            | 20 marks            |
| Officiating Proficiency of the events | 20 Marks            | 20 Marks            |
| Record book and Viva                  | 15 Marks            | 15 Marks            |
| Total                                 | 75 Marks            | 75 Marks            |

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**SEMESTER – V**

| <b>Course Code</b>      | <b>Course Name</b>                                      | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|-------------------------|---|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| <b>THEORY</b>           |   |               |                       |                       |                       |                    |
| BSC/CC/501              | Sports Physiotherapy and Rehabilitation                 | 2             | 32                    | 20                    | 30                    | 50                 |
| BSC/CC/502              | Sports Nutrition  | 2             | 32                    | 20                    | 30                    | 50                 |
| BSC/CC/503              | Research Method and Statistics in Sports                | 3             | 48                    | 30                    | 45                    | 75                 |
| BSC/DSC/01              | Sports Event Management                                 | 2             | 32                    | 20                    | 30                    | 50                 |
| BSC/DSC/02A             | Specific Motor Qualities of Sports and Games: Athletics | 3             | 48                    | 30                    | 45                    | 75                 |
| <b>LAB PRACTICAL</b>    |   |               |                       |                       |                       |                    |
| BSC/CC(P)/501           | Sports Physiotherapy and Rehabilitation                 | 1             | 32                    | 10                    | 15                    | 25                 |
| BSC/CC(P)/502           | Sports Nutrition  | 1             | 32                    | 10                    | 15                    | 25                 |
| BSC/DSC(P)/02A          | Specific Motor Qualities of Sports and Games: Athletics | 1             | 32                    | 10                    | 15                    | 25                 |
| <b>SPORTS PRACTICAL</b> |   |               |                       |                       |                       |                    |
| BSC/CCP/504A            | Age Group Sports Training: Athletics                    | 4             | 128                   | 50                    | 50                    | 100                |
| BSC/CCP/505A            | Practical: Athletics                                    | 6             | 192                   | 75                    | 75                    | 150                |
| <b>TOTAL</b>            |   | <b>25</b>     | <b>608</b>            | <b>275</b>            | <b>350</b>            | <b>625</b>         |

NB: CC= Core Course, AECC=Ability Enhancement compulsory course,DSC= Discipline Specific Course, GE=Generic Elective, SECC= Skill Enhancement core course, CCP=Core course practical

## SEMESTER –V

### SPORTS PHYSIOTHERAPY AND REHABILITATION

#### COURSE CODE: BSC/CC/501

| Course Code | Course Name                             | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|---|--------|----------------|----------------|----------------|-------------|
| BSC/CC/501  | Sports Physiotherapy and Rehabilitation | 2      | 32             | 20             | 30             | 50          |

#### COURSE LEARNING OUTCOMES

After completing this course, the students will be able to

- Understand the Meaning, definition and importance of physiotherapy and therapeutic exercises
- Understand various types of therapeutic modalities
- Understanding the need and importance of rehabilitation and recovery.

#### COURSE CONTENTS

##### UNIT-I

##### Introduction to Physiotherapy

- 1.1 Definition, meaning and Importance of Physiotherapy
- 1.2 Definitions of Therapeutic exercise, Classification, Effects and uses of different types of exercise.
- 1.3 Stretching- types of stretching, Passive Movements (Relaxed, Forced and passive - stretching) Active movements.
- 1.4 Strengthening Exercises, therapeutic means and methods of strengthening exercises

##### UNIT-II

##### Therapeutic Modalities

- 2.1 Definition of Hydrotherapy, Different forms of Hydrotherapy: Whirlpool, Contrast bath, (Indications & Contra-indications of each modality).
- 2.2 Thermotherapy – Hydrocollator Pack and Cryo-Therapy: Cold Packs, Cryo-Compression, Cryokinetics
- 2.3 Electrotherapy – Infrared rays – Ultraviolet rays – short wave diathermy – ultrasonic rays. IFT (interferential therapy) Brief Concept of electrical muscle stimulator, Paraffin wax and LASER therapy.
- 2.4 Manual Therapy and Massage

## UNIT-III

### **Sports Rehabilitation and Recovery**

- 3.1 Definition concept & approach in athletic rehabilitation.
- 3.2 Principles of Rehabilitation
- 3.3 Phases of Athletic Rehabilitation, Role of Coaches in Athlete's Care and Rehabilitation
- 3.4. Medico biological means of recovery, Ice Bath, steam bath, Sauna bath, whirlpool bath



**PRACTICAL**  
**SPORTS PHYSIOTHERAPY AND REHABILITATION**

**Course CODE: BSC/CC(P)/501**

| <b>Course Code</b> | <b>Course Name</b>                      | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|--------------------|---|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| BSC/CC(P)/501      | Sports Physiotherapy and Rehabilitation | 1             | 32                    | 10                    | 15                    | 25                 |

**UNIT-I**

- 1.1. Relaxed, Forced and passive – stretching therapeutic exercises, PNF stretching
- 1.2. Strengthening Exercise (Isometric and Isotonic)
- 1.3. learn acute injury management
- 1.4. Relaxation techniques

**UNIT-II**

- 2.1 Operation of steam, sauna and whirlpool bath
- 2.2. Knowledge of operating instruments like IFT, Ultrasound, long and short-wave diathermy
- 2.3 Application of paraffin bath, Cryotherapy, compression bandaging, use of Kinesiotape
- 2.4 Massage technique

**REFERENCES**

1. Armstrong and Tucker, Injuries in sports (London: Staples press, 1964).
2. Christine, M. D., (1999). Physiology of sports and exercise. USA: Human Kinetics.
3. Conley, M. (2000). Bioenergetics of exercise training. In T.R. Baechle, & R.W. Earle, (Eds.), Essentials of Strength Training and Conditioning (pp. 73-90). Champaign, IL: Human Kinetics.
4. David, R. M. (2005). Drugs in sports, (4th Ed). Routledge Taylor and Francis Group.
5. Hunter, M. D. (1979). A dictionary for physical educators. In H. M. Borrow & R. McGee, (Eds.), A Practical approach to measurement in Physical Education (pp. 573-74). Philadelphia: Lea &Febiger.
6. Jeyaprakash, C. S., Sports Medicine, J.P. Brothers Pub., New Delhi, 2003.
7. Khanna, G. L., (1990). Exercise physiology & sports medicine. Delhi: Lucky Enterprises.
8. Mathew, D. K. & Fox, E. L, (1971). Physiological basis of physical education and athletics. Philadelphia: W.B. Saunders Co.
9. Philadelphia: W.B. Saunders Co.
10. Pandey, P. K., (1987). Outline of sports medicine, New Delhi: J.P. Brothers Pub.
11. Ray, Steven and Irvin Richard, Sports Medicine. (New Jersey: Englewood cliffa, Prentice Hall, 1983).
12. Williams, J. G. P. (1962). Sports medicine. London: Edward Arnold Ltd.

## SEMESTER –V

### SPORTS NUTRITION

COURSE CODE: BSC/CC/502

| Course Code | Course Name      | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|------------------|--------|----------------|----------------|----------------|-------------|
| BSC/CC/502  | Sports Nutrition | 2      | 32             | 20             | 30             | 50          |

#### COURSE LEARNING OUTCOMES

After completing this course, the students will able to

- Understand Meaning, Definition, Aims and Objectives of Sports Nutrition, Mal nutrition and Balanced diet.
- Understand nutritional requirement of Sports person
- Concept of fluid and electrolyte replacement, values of vitamins and minerals, carbohydrate loading according to the requirement of sports

#### UNIT – I

##### Introduction to Nutrition

- 1.1 Meaning, Definition, Aims and Objectives of Sports Nutrition
- 1.2 Essentials of Nutrition, Carbohydrate-Protein-Fat-Vitamin-Minerals
- 1.3 Balance Diet and Nutritive values of food
- 1.4 Malnutrition and imbalance of nutrition

#### UNIT – II

##### Nutritional Requirement of Sports Person

- 2.1 Essential Dietary requirements of Sports persons.
- 2.2 Planning of athletic diets for different categories of sports
- 2.3 School students-College men and women, Team Sport-Athletics
- 2.4 Pre-game Meal, Obesity, Weight Control, Crash dieting and Eating Disorders, Bulimia, Anorexia Nervosa, Binge Eating

#### UNIT – III

##### Carbohydrate Loading and Metabolism

- 3.1 Metabolism, Hydration in Athlete
- 3.2 Food Safety –Factors Affecting Nutrition, Energy – BMR, RDA, Weight and Body Composition of Athletes
- 3.3 Diet during Sports competition for endurance athletes, carbohydrate loading, supplement to the daily diet,
- 3.4 Vitamins & Minerals, Fluids and electrolyte replacement, Calcium and iron supplementation

## PRACTICAL

### Sports Nutrition

Course CODE: BSC/CC(P)/502

| Course Code   | Course Name      | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|---------------|------------------|--------|----------------|----------------|----------------|-------------|
| BSC/CC(P)/502 | Sports Nutrition | 1      | 32             | 10             | 15             | 25          |

#### UNIT-I

- 1.1. Preparation of a Balanced Diet chart.
- 1.2 Obesity (Height, Weight Ratio), Body Mass Index and Calculation of Body Fat Percentage, planning of weight reduction in combat sports.
- 1.3. Nutritional assessment for Athletes and planning for nutrition for athletes.
- 1.4. Assessment of Eating Disorders.

#### UNIT-II

- 2.1. Designing a diet plan for different level of players and elite athletes.
- 2.1. Assessment of Hydration of athletes and planning of hydration strategies.
- 2.3 Assessment of hemoglobin deficiency and diet of athletes.
- 2.4. Designing carbohydrate loading plan for endurance sports person.

#### SUGGESTED READING

1. Benardot Dan, Advanced sports Nutrition, Human Kinetics, 2020.
2. Fink Heather Hedrick, JSports Nutrition, A Practical approach, Jones and Bartlett Learning, 6th ed
3. 2020.
4. Jeukendrup Asker, Sports Nutrition, Human Kinetics, 2018.
5. Karpinski Christina and A. Rosenbloom Christine, Sports Nutrition: A hand book of Professionals, Academy of Nutrition and Dietetics, 2017.
6. Mizera Justyna and Krzysztof mizera, Sports Nutrition: Eat smart, Be healthy Get on top of your game, Velo press, 2019.
7. Stull, G. A. and Cureton, T.K. Encyclopedia of Physical Education, Fitness and Sports-Training Environment, Nutrition and Fitness, Brighton Publishing Co. Saltlake City, 1980.
8. Wolliam D Mcardle, Sports, Exercise and Nutrition, LWW, 2019.

**SEMESTER –V**  
**RESEARCH METHOD AND STATISTICS IN SPORTS**  
**COURSE CODE: BSC/CC/503**

| Course Code | Course Name                              | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|--|--------|----------------|----------------|----------------|-------------|
| BSC/CC/503  | Research Method and Statistics in Sports | 3      | 48             | 30             | 45             | 75          |

**COURSE LEARNING OUTCOME**

**After completing this course, the students will be able to**

- Understand types, nature, scope of Research
- Understand the classification of research and the research process.
- Identify various sources of information for literature review and data collection.
- Understand statistics and its application in sports research

**UNIT-I**

**Introduction to Research**

- 1.1 Meaning, definition and types of Research.
- 1.2 Characteristics of Good Research, Nature and Scope of Research in Sports.
- 1.3 Classification of Research, Location and identifying of research Problem, Criteria for Selecting a research Problem
- 1.4 Understand Research Format, chapters and writing synopsis

**UNIT-II**

**Methods of Research**

- 2.1 Descriptive Methods of Research: Survey and Case study, interview and questionnaire
- 2.2 Historical Research: Steps in Historical Research, Sources of Primary and Secondary Data, Internal and External Criticism.
- 2.3 Experimental Research – Meaning, Nature and Importance, Meaning of Variable, Types of Variables, Research Design.
- 2.4 Purpose of literature review, presenting the research hypothesis, Limitation, delimitation and significance of studies

**UNIT-III**

**Introduction to Statistics-I**

- 3.1 Meaning, Definition and Importance of Statistics in sports.
- 3.2 Quantitative and qualitative Data, tools and techniques of data collecting, population and sample
- 3.3 Class interval, Raw data, group and ungroup data, Construction of Table, Introduction to Graphic Techniques (Histogram, Bar chart and pie-diagram)
- 3.4 Measure of Central tendency, Calculation of Mean, Median & Mode

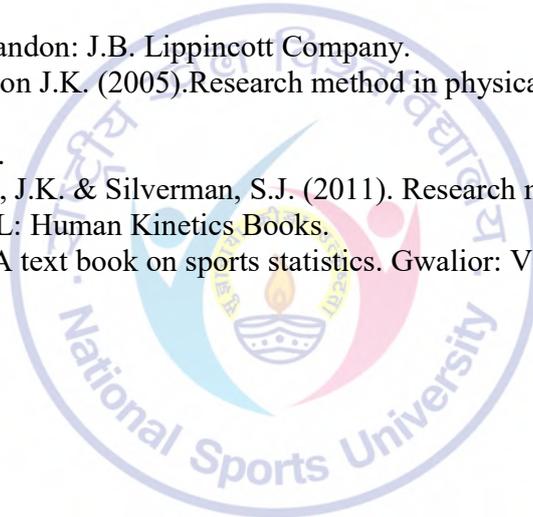
## UNIT-IV

### Introduction to Statistics-II

- 4.1 Normal Curve, skewness and kurtosis
- 4.2 Measure of Dispersion (Standard Deviation, Mean Deviation, Quartile Deviation)
- 4.3 Method of Calculation of Correlation
- 4.4 Types of t-test, interpreting t, relationship of t and r.

### SUGGESTED READINGS

1. Best, J.W. (1963). Research in education. U.S.A.: Prentice Hall.
2. Clark, H. H., & Clark, D. H. (1975). Research process in physical education. Englewood cliffs, New Jersey: Prentice Hall, Inc.
3. Garrett, H.E. (1981). Statistics in psychology and education. New York: VakilsFeffer and Simon Ltd.
4. Oyster, C. K., Hanten, W. P., & Llorens, L. A. (1987). Introduction to research: A guide for the health science professional. Landon: J.B. Lippincott Company.
4. Thomas, J.R., & Nelson J.K. (2005). Research method in physical activity. U.S.A: Champaign, IL: Human Kinetics Books.
5. Thomas, J.R., Nelson, J.K. & Silverman, S.J. (2011). Research method in physical activity. U.S.A: Champaign, IL: Human Kinetics Books.
6. U.S.A: Champaign, IL: Human Kinetics Books.
7. Verma, J. P. (2000). A text book on sports statistics. Gwalior: Venus Publications.



**SEMESTER –V**  
**SPORTS EVENT MANAGEMENT**  
**COURSE CODE: BSC/DSC/01**

| <b>Course Code</b> | <b>Course Name</b>      | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|--------------------|-------------------------|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| BSC/DSC/01         | Sports Event Management | 2             | 32                    | 20                    | 30                    | 50                 |

**COURSE LEARNING OUTCOMES**

**After completing this course, the students will be able to**

- Identify various types of contemporary sporting events and role of event manager and staffs
- Understand budget, sponsorship and marketing system of event management
- Understand pre and post event evaluation, Risk Management and negligence

**COURSE CONTENT:**

**UNIT-I**

**Introduction**

- 1.1. Understanding Sport Facilities/ Planning, Importance of Sports Event Management
- 1.2. Different types of sports events
- 1.3. Event Planning Sequence, Opening and Closing ceremony
- 1.4. Event manager and role of management staffs and different committee

**UNIT-II**

**Budgeting, Sponsorship and Marketing**

- 2.1 Sports event budget, Planning and preparation of budget, Event Cost Estimate
- 2.2 Sponsorship, advertisement
- 2.3 Marketing strategies and Event Marketing
- 2.4 Media role and promotion

**UNIT-III**

**Event Management and Negligence:**

- 3.1 Sports Venue location and selection and facilities
- 3.2 Event and Game Day Management, Risk Management and negligence
- 3.3 Services and Logistics, Pre Event and Post event evaluation, evaluation of managing staffs
- 3.4 Crowded Management

**Suggested Reading:**

1. Guy Masterman, Strategic Sports Event Management: Third edition 3rd Edition, Routledge Edition, 2016.
2. Guy Masterman, Innovative Marketing Communications: Strategies for the Events Industry (Masterman & Wood, 2006)

3. Jordan Leslie-Ann, Sports Event Management: The Caribbean Experience (New Directions in Tourism Analysis) Routledge, 2010.

4. Stedman Graham the Ultimate Guide to Sport Event Management and Marketing, McGraw-Hill Education (19 January 1995)



**SEMESTER –V**  
**SPECIFIC MOTOR QUALITIES OF SPORTS AND GAMES: Athletics**  
**COURSE CODE: BSC/DSC/02A**

| <b>Course Code</b> | <b>Course Name</b>                                      | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|--------------------|---|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| BSC/DSC/02A        | Specific Motor Qualities of Sports and Games: Athletics | 3             | 48                    | 30                    | 45                    | 75                 |

**LEARNING OUTCOME:**

**After completing this course, the students will be able to**

- Understand the meaning of specific motor qualities in sports and games
- Understand the types of motor skill and individual difference
- Understand anthropometrical and physiological characteristics in skill development
- Understand types of motor task in games and sports

**UNIT-I**

**Introduction**

- 1.1. Meaning of specific motor qualities in sports and games
- 1.2. Types of motor qualities in sports
- 1.3. Difference between motor abilities and motor skills
- 1.4. Motor performance ability in different sports and games.

**UNIT-II**

**Types of Motor skill and individual difference**

- 2.1. Gross motor skill and fine motor skill
- 2.2. Individual differences in motor abilities in sports
- 2.3 Stages of motor learning: Cognitive, Assertive and Autonomous
- 2.4. Motor learning and motor performance

**UNIT-III**

**Characteristics and components of motor skill**

- 3.1. Anthropometrical characteristics of players in relationship with skill acquisition
- 3.2. Physiological characteristics of motor development
- 3.3 Component of development: Growth, Maturation, Experience or learning and Adaptation
- 3.4 Components of motor skill (power, agility, balance, speed, reaction time and coordination)

**UNIT-IV**

**Types of motor task in sports and Games**

- 4.1. Discrete, Serial and continuous task
- 4.2. Importance of recognizing the types of tasks
- 4.3 Progression of motor task
- 4.4 proper observation, rectification of motor task and feedback

Semester – V

PRACTICAL

Specific Motor Qualities of Sports and Games: Athletics

COURSE CODE: BSC/DSC(P)/02A

| Course Code    | Course Name   | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|----------------|---|--------|----------------|----------------|----------------|-------------|
| BSC/DSC(P)/02A | Specific Motor Qualities of Sports and Games: Athletics | 1      | 32             | 10             | 15             | 25          |

UNIT-I

- 1.1.Administration of strength test
- 1.2.Cardiovascular endurance test
- 1.3.Flexibility test
- 1.4.Speed test

UNIT-II

- 2.1 Coordination test
- 2.2. Balance test
- 2.3 Reaction time test
- 2.4Agility test

**Suggested Reading:**

1. Bota,C,.Prodescu,B, (1997).Physiology physical education and sports - ErgophysiologyRm., AntimIvireanul Publishing House,-Valcea.
2. Demeter,A, (1981). Physiological and biochemical bases of motor qualities, Sport – Tourism Publishing House, Bucharest.
3. Dragnea,A.,Bota,A, (1999). Theory of motor activities, Didactic and Pedagogical Publishing House, Bucharest.
4. Gh., Mogo: ,A, (1977). Development of motor qualities ; Sport Publishing House – Tourism Bucharest

**Semester – V**

**AGE GROUP SPORTS TRAINING: ATHLETICS**

**COURSE CODE: BSC/CCP/504A**

| <b>Course Code</b> | <b>Course Name</b>                      | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|--------------------|---|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| BSC/CCP/504<br>A   | Age Group Sports Training:<br>Athletics | 4             | 128                   | 50                    | 50                    | 100                |

**Learning Outcomes**

- To understand health and history background
- To understand systematization of sports training
- To develop fitness components
- To develop different training for Age Group

**UNIT-I**

**Health and History background**

- 1.1. Review of history and health records of age Group Athletes
- 1.2. Present Physical fitness test
- 1.3. Observation of skills and game proficiency
- 1.4. Making Training plan for the different Age Group

**UNIT-II**

**Systematization of Sports Training Process**

- 2.1 Basic training
- 2.2 Advanced (Intermediate) training
- 2.3 High Performance training
- 2.4 High Intensity Training in Athletics

**UNIT-III**

**Fitness Components for Age Group athletics**

- 3.1 Strength abilities and training
- 3.2 Endurance abilities and training
- 3.3 Speed and flexibility abilities and training
- 3.4 Coordinative abilities and training

## UNIT-IV

### Training for Age Group

- 4.1 Characteristics during developmental stages
- 4.2. Designing fitness and conditioning training programme for different age group
- 4.3 Designing Preparatory period Training plan
- 4.4 Designing Competition period training plan

### Evaluation Total Mark 100

| Evaluation criteria   | Internal Assessment | External Assessment |
|---|---------------------|---------------------|
| Physical Fitness test for different age group                     | 15 Marks            | 15 Marks            |
| Design conditioning and fitness programme for different age group | 15 Marks            | 15 Marks            |
| Design training plan for different age group                      | 10 Marks            | 10 Marks            |
| Record book and viva  | 10 Marks            | 10 Marks            |
| Total   | 50 Marks            | 50 Marks            |



**Semester – V**

**PRACTICAL: ATHLETICS**

**COURSE CODE: BSC/CCP/ 505A**

| <b>Course Code</b> | <b>Course Name</b>   | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|--------------------|----------------------|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| BSC/CCP/505<br>A   | Practical: Athletics | 6             | 192                   | 75                    | 75                    | 150                |

**Learning Objectives:**

- Teaching progression of Technique of Pole Vault, Hammer Throw & Combine Event
- Applied Scientific principles of Pole Vault, Hammer Throw & Combine Event
- Fault, Reason and Correction of Pole Vault, Hammer Throw & Combine Event
- Revision of sprint, jumping and throwing events

**UNIT - I**

**Pole-Vault**

- 1.1 Pole vault technique: Grip, carry, run and Plant
- 1.2 Pole vault technique: Take off, pull-turn-push, the clearance, landing
- 1.3 Teaching progression of Technique & Mechanical Analysis of pole vault Technique
- 1.4 Faults- reasons-corrections-video analysis of pole vault

**UNIT - II**

**Hammer throw**

- 2.1 The grip, swinging, entry, turn, the delivery
- 2.2 Heel turn toe foot work, preparatory phase swing, transfer phase , building momentum phase
- 2.3 Teaching progression of Technique & Analysis of hammer throw Technique
- 2.4 Faults- reasons-corrections-video analysis of Hammer throw

### UNIT - III

#### Combined events

- 3.1 Training Plan for combined events in athletics
- 3.2 Day 1 and Day 2 events & Types of Combined events athletes
- 3.3 Role of decathlon tables
- 3.4 Test, Evaluation & Psychological preparation for competition.

### UNIT - IV

#### Revision of Sprint event Skills

- 4.1 Revision of Sprints techniques
- 4.2 Starting and finishing techniques
- 4.3 Mechanical analysis
- 4.4 Fault correction

#### Evaluation Total Mark 150

| Evaluation criteria                   | Internal Assessment | External Assessment |
|---------------------------------------|---------------------|---------------------|
| Skill proficiency                     | 20Marks             | 20Marks             |
| Fault correction and training plan    | 20 marks            | 20 marks            |
| Officiating Proficiency of the events | 20 Marks            | 20 Marks            |
| Record book and Viva                  | 15 Marks            | 15 Marks            |
| Total                                 | 75 Marks            | 75 Marks            |

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**SEMESTER –VI**

| <b>Course Code</b>      | <b>Course Name</b>                            | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|-------------------------|---|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| <b>THEORY</b>           |   |               |                       |                       |                       |                    |
| BSC/CC/601              | Adventure Sports                              | 3             | 48                    | 30                    | 45                    | 75                 |
| BSC/CC/602              | Sports Technology                             | 2             | 32                    | 20                    | 30                    | 50                 |
| BSC/CC/603              | Philosophy of Sports Coaching                 | 2             | 32                    | 20                    | 30                    | 50                 |
| BSC/DSC/03              | Sports Pedagogy                               | 3             | 48                    | 30                    | 45                    | 75                 |
| BSC/DSC/04A             | Tests, Measurements and Evaluation: Athletics | 2             | 32                    | 20                    | 30                    | 50                 |
| <b>LAB PRACTICAL</b>    |   |               |                       |                       |                       |                    |
| BSC/CC(P)/601           | Adventure Sports                              | 1             | 32                    | 10                    | 15                    | 25                 |
| BSC/DSC(P)/03A          | Sports Pedagogy                               | 1             | 32                    | 10                    | 15                    | 25                 |
| BSC/DSC(P)/04A          | Tests, Measurements and Evaluation: Athletics | 1             | 32                    | 10                    | 15                    | 25                 |
| <b>SPORTS PRACTICAL</b> |   |               |                       |                       |                       |                    |
| BSC/CCP/604A            | Gender Based Sports Training: Athletics       | 4             | 128                   | 50                    | 50                    | 100                |
| BSC/CCP/605A            | Practical: Athletics                          | 6             | 192                   | 75                    | 75                    | 150                |
| <b>TOTAL</b>            |   | <b>25</b>     | <b>608</b>            | <b>275</b>            | <b>350</b>            | <b>625</b>         |

NB: CC= Core Course, AECC=Ability Enhancement compulsory course,DSC= Discipline Specific Course,  
 GE=Generic Elective, SECC= Skill Enhancement core course, CCP= Core course practical

**SEMESTER –VI**  
**ADVENTURE SPORTS**  
**COURSE CODE: BSC/CC/ 601**

| Course Code | Course Name      | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|------------------|--------|----------------|----------------|----------------|-------------|
| BSC/CC/601  | Adventure Sports | 3      | 48             | 30             | 45             | 75          |

**COURSE LEARNING OUTCOMES**

**After completing this course, the students will be able to**

- Understand about adventure sports and its classification
- Understand about mountain sports and their equipment and clothing
- Understand about water sports and their equipment and clothing
- Understand about aero sports and their equipment and clothing

**Unit I**

**Introduction to Adventure Sports**

- 1.1 Classification of Adventure Sports
- 1.2 Scope of Adventure Sports: New Trends, Training Institutes, Job Opportunities, Advantages & Disadvantages
- 1.3 Fitness Training: Physical Fitness Factors, Fitness Training & its Importance
- 1.4 Ethics & Qualities of an Adventure Expert.

**Unit II**

**Mountain Sports**

- 2.1 Definition of Mountaineering, History, Types: Trekking, Rock Climbing, Bouldering, Ice Climbing, Wall Climbing
- 2.2 Trekking: Mountain Manners, Trek Planning, Trekking sites in India.
- 2.3 Rock climbing: Principles, Route Planning, Holds, Equipment and Clothing
- 2.4 Knots: Thumb, Reef, Clove Hitch, Fisherman, Simple Bowline, Figure of Eight

**Unit III**

**Water Sports**

- 3.1 Types: Canoeing, Kayaking, Rafting, Scuba Diving, Water Skiing
- 3.2 Adventure sports sites in India
- 3.3 Rafting & Kayaking: Equipment, Clothing & Techniques
- 3.4 Scuba Diving: Equipment, Clothing & Techniques

**Unit IV**

**Aero Sports**

- 4.1 Types: Ballooning, Hang gliding, Paragliding, Parasailing, Skydiving
- 4.2 Hang gliding & Paragliding: Equipment, Clothing & Techniques
- 4.3 Parasailing: Equipment, Clothing & Techniques
- 4.4 Sky diving: Equipment, Clothing & Techniques

**PRACTICAL**  
**Adventure Sports**  
**COURSE CODE: BSC/CCP/601**

| <b>Course Code</b> | <b>Course Name</b> | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|--------------------|--------------------|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| BSC/CCP/601        | Adventure Sports   | 1             | 32                    | 10                    | 15                    | 25                 |

**UNIT-I**

- 1.1 Camping
- 1.2 Trekking, Hiking
- 1.3 Rock climbing/ artificial
- 1.4 Canoeing, kayaking, etc.

**UNIT-II**

- 2.1 Designing adventure Sports programme for School Children – Individual and Groups
- 2.2 Designing adventure Sports programme Sports for Youth – Individual and Groups
- 2.3 Designing adventure Sports programme Sports for Middle Aged People – Individual and Groups
- 2.4 Adventure sports equipment and its application

**Suggested Reading:**

- 1. Anker Conrad, Mountaineering the freedom hill, kindle ed., 2017
- 2. Berry Matt, Adventure Sports Coaching, Routledge; 1st edition (April 1, 2015)
- 3. Bob Gaines, Mastering Sports and Trad Climbing, Kindle 2018
- 4. Bob Gaines, Rock climbing for outdoor beginners, Kindle ed., 2020
- 5. Razzetta Sam, Canoe and Kayak Building the Light and Easy Way: How to Build Tough, Super-Safe Boats in Kevlar, Carbon, or Fiberglass (International marine-RMP), 2009
- 6. Randy pen, The handy box of knots: Useful knots for every situation, Indoor and Out, Sterling Innovation, 2017
- 7. Slight Steve and Ben Ainslie, The Complete Sailing Manual, 4th Edition, DK, 2017

**SEMESTER – VI**  
**SPORT TECHNOLOGY**  
**COURSE CODE – BSC/CC/602**

| <b>Course Code</b> | <b>Course Name</b> | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|--------------------|--------------------|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| BSC/CC/602         | Sport Technology   | 2             | 32                    | 20                    | 30                    | 50                 |

**COURSE LEARNING OUTCOME**

**After completing this course, the students will be able to**

- Understand the relevant technology and utilization of technology in sports.
- Understand the science of sports material and its implementation in enhance of Sports performance.
- Understand the different type of surface of play field.

**UNIT - I**

**Sports Technology**

- 1.1 Opportunities and challenges in sports technology.
- 1.2 The nature of Sports Technology and Data Science in sports performance
- 1.3 A scientific view on sports technology
- 1.4 Technologies for judging, umpiring and refereeing

**UNIT – II**

**Material Science in Sports**

- 2.1 Importance of Material Science in sports
- 2.2 The key aspects of materials processing, performance and disposal with respect to sustainability
- 2.3 Types of materials used in Playing Equipment, Balls, Footwear and sports garments.
- 2.4 Understanding the role of polymers in sports equipment

**UNIT – III**

**Artificial Sports Surfaces**

- 3.1 Modern surfaces for playfields, construction and installation of sports surfaces.
- 3.2 Types of surface materials: synthetic, wood, polyurethane. Artificial turf.
- 3.3 Importance of ergonomics in sports equipment
- 3.4 Maintenance of artificial turf and synthetic flooring. Case studies: synthetic sports surfaces

**Suggested Reading:**

1. Charles J.A. Crane, F.A.A. and Furness, J.A.G. (1987) "Selection of Engineering Materials" UK: Butterworth Heiremann.
2. Finn, R.A. and Trojan P.K. (1999) "Engineering Materials and their Applications" UK: Jaico Publisher.
3. John Mongilo, (2001), "Nano Technology 101 "New York: Green wood publishing group.
4. Kochar, S.K. Methods and Techniques of Teaching (New Delhi, Jullandhar, Sterling Publishers Pvt. Ltd.), 1982
5. Kozman, Cassidy and Jackson. Methods in Physical Education (W.B. Saunders Company, Philadelphia and London), 1952.



**SEMESTER –VI**  
**PHILOSOPHY OF SPORTS COACHING**  
**COURSE CODE: BSC/CC/603**

| Course Code | Course Name                   | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|-------------------------------|--------|----------------|----------------|----------------|-------------|
| BSC/CC/603  | Philosophy of Sports Coaching | 2      | 32             | 20             | 30             | 50          |

**COURSE LEARNING OUTCOME**

**After completing this course, the students will be able to**

- Understand about introduction to and a comprehensive study of the philosophy of sport coaching.
- It is designed to examine the most significant questions that have arisen within the discipline of sports science.
- It may focus upon various ethical issues that arise within the sports and the function of games in human life.

**UNIT-I**

**Introduction to Sports Coaching Philosophy**

- 1.1 Meaning of Coaching Philosophy
- 1.2 Nature and significance of play and sports as a cultural phenomenon
- 1.3 Sport: An Historical Phenomenology
- 1.4 Fairness in sport: an ideal and its consequences.

**UNIT-II**

**Coaching Philosophy: Science and Art**

- 2.1. Coaching: Art, Science, Skill, style and secret of successful coaching.
- 2.2. Effective Practices, Knowledge- what makes a coach.
- 2.3. A Coach- Teacher- Trainer-motivator-disciplinarian –scientist, Coach as a Leader and leadership style in Coaching.
- 2.4. Moral and ethical values of Sports, ethics in sports coaching.

**UNIT- III**

**Developing a Coaching Philosophy**

- 3.1. Philosophy of a Coach and development of own coaching philosophy.
- 3.2. Long term and short-term coaching conception, Aesthetic appreciation and Intellectual creativity in coaching.
- 3.3. Performance development, improvement, management and maintenance.
- 3.4. Coaching Philosophy for diverse athletes and coaching for character, Leadership capacity and Responsible citizenship.

**Suggested Reading:**

1. Bucher, C.A.: Foundation of Physical Education, St. Louis: The C.V. Mosby company, 1983.
2. History and Philosophy of Sport and Physical Activity, Human Kinetics by R. Scott Kretchmar, Mark Dyreson, Matthew Liewellyn, John Gleaves, 2017.
3. Synder and Geoh: Professional preparation in Health Education, Physical Education and Recreation.
4. Barrow, H.M.: Man and Movement: Principles of Physical Education, Philadelphia Lea and Fabiger, 1977.
5. Joseph, P.M.: Organization of Physical Education, Kandivila,: Old students Association, T.I.P.E.
6. Kamlesh, M.L. and Sangral, M.S.: History and Principles of Physical Education, Prakash Brothers, 1983.
7. Wuest and Bucher: Foundations of Physical Education and Sports, B.I. Publications Pvt. Ltd., New Delhi.
8. William, H.F.: Physical Education and Sports in Changing Society, Surjeet Publication, Delhi.



**SEMESTER –VI**  
**SPORTS PEDAGOGY**  
**COURSE Code: BSC/DSC/03**

| <b>Course Code</b> | <b>Course Name</b> | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|--------------------|--------------------|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| BSC/DSC/03         | Sports Pedagogy    | 3             | 48                    | 30                    | 45                    | 75                 |

**COURSE LEARNING OUTCOME**

**After completing this course, the students will be able to**

- Understand the current issue in sports coaching Pedagogy
- Understand various teaching and coaching methods and coaching aids
- Preparation of lesson plans for various sports skill and Presentation techniques
- Utilize various teaching and coaching aids for the conduction of sports coaching.

**UNIT- 1**

**Introduction and current issue in Sports Coaching Pedagogy**

- 1.1 Meaning and definition of sports pedagogy
- 1.2 Current issues in sports coaching pedagogy
- 1.3 Technology and sports coaching
- 1.4 Sports Coach Education framework

**UNIT-II**

**Methods, Teaching and Coaching Aids**

- 2.1 Meaning, Importance and Types of Teaching and Coaching Aids.
- 2.2 Criteria for selecting Teaching Aids: Availability, Modification and, Scientific Aids
- 2.3 Simulation Teaching: Meaning, Types and steps of simulation teaching.
- 2.4 Types of Teaching Methods: Lecture, Command, Discussion, Workshop, Project, Demonstration, Imitation methods, and whole part whole methods

**UNIT-III**

**Coaching Lesson Plan and Presentation Technique**

- 3.1 Lesson Planning: Meaning, Importance, Types and Principles of lesson plans.
- 3.2 Presentation Techniques: Personal and Technical preparation, Steps of presentation – Demonstration, Explanation, Practice and, Rectification.
- 3.3 Class Construction and Classification:
- 3.4 Methods of Sports Coaching: Simple to Complex, Known to Unknown, Whole-Part-Whole Method, and Learning by Doing.

## Unit- IV

### Methods applied to teaching and training in sports

- 4.1 The difference between learning and doing
- 4.2 Individual attention to the player in teaching and learning process, types of practice skill;  
Fixed, massed, variable and distributed practice.
- 4.3 Evaluation of sports training and teaching
- 4.4 Connecting sports training to Life skill



**PRACTICAL  
SEMESTER – VI  
SPORTS PEDAGOGY (LESSON PLAN)**

**COURSE CODE: BSC/DSC(P)/ 03A**

| <b>Course Code</b> | <b>Course Name</b>            | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|--------------------|-------------------------------|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| BSC/DSC(P)/03A     | Sports Pedagogy (Lesson Plan) | 1             | 32                    | 10                    | 15                    | 25                 |

- The students will practice 15 coaching lessons.
- They will appear practical examination (Final Lesson) and evaluated by both internal and external examiner.

Total marks 100  
(Internal Marks 50 and external Marks 50)

**Lesson plan:**

Class formation  
Introduction  
Demonstration  
Explanation  
Kinesiological and Mechanical analysis  
Rectification  
Lead up activities  
Class Dismissal

| <b>Evaluation</b>                                      | <b>Internal assessment</b> | <b>External assessment</b> |
|--|----------------------------|----------------------------|
| Class formation introduction and Reporting             | 10 marks                   | 10 marks                   |
| Demonstration  | 10 marks                   | 10 marks                   |
| Explanation  | 10 marks                   | 10 marks                   |
| Rectification and class control                        | 10 marks                   | 10 marks                   |
| Lead up activities, dismissal part and Time Management | 10 marks                   | 10 marks                   |
| <b>Total</b>   | <b>50 Marks</b>            | <b>50 Marks</b>            |

### Suggested Reading

1. Cassidy, T. (2004). Coaching methods. In C. Cassidy, R. Jones & P. Protrac (Eds). *Understanding Sports Coaching: The Social Cultural and Pedagogical Foundations of Coaching Practice* (pp26-37). London: Routledge.
2. Kidman, L. (2001). *Developing Decision Makers: An Empowerment Approach to Coaching*. Christchurch, NZ: Innovative Print Communications
3. Bhardwaj, A. (2003). *New media of educational planning*. New Delhi: Sarup of Sons.
4. Kochar, S. K. (1982). *Methods and techniques of teaching*. New Delhi: Sterling Publishers Pvt. Ltd.
5. Sampath, K., Pannirselvam, A. & Santhanam, S. (1981). *Introduction to Educational Technology*. New Delhi: Sterling Publishers Pvt. Ltd.
6. Walia, J. S. (1999). *Principles and Methods of Education*. Jalandhar: Paul Publishers.



**SEMESTER – VI**  
**TESTS, MEASUREMENTS, AND EVALUATION: Athletics**  
**COURSE CODE: BSC/DSC/04A**

| Course Code | Course Name                                    | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|--|--------|----------------|----------------|----------------|-------------|
| BSC/DSC/04A | Tests, Measurements, and Evaluation: Athletics | 2      | 32             | 20             | 30             | 50          |

**COURSE LEARNING OUTCOME:**

After completing this course, the students will be able to

- Understand meaning of test measurement and evaluation
- Understand Selection and Construction of Tests
- Measurement of Physical Performance
- Understand about sports specific test

**UNIT-I**

**Introduction:**

- 1.1 Meaning of Test Measurement and Evaluation.
- 1.2 Nature and scope of evaluation programme.
- 1.3 Need and importance of evaluation in the field of physical education.
- 1.4 Principles of Evaluation.

**UNIT-II**

**Measurement of Physical Performance:**

- 2.1 Organic Functions: Cardiovascular and respiratory function
- 2.2 Cooper's 12 minutes continuous run-walk test and modifications.
- 2.3 Harvard step test and its modified tests (High School and college level for Men and Women)
- 2.4 Tuttle Pulse ratio test; Hyman's Cardio pulmonary Index(CPI)

**UNIT-III**

**Sports Specific Test:**

- 3.1 Speed – 30mt Standing, 30 mt flying, Reaction Time – Scale Drop Test
- 3.2 Strength – 1 RM, Standing Broad Jump, Medicine Ball Throw, Vertical Jump
- 3.3 Endurance – Cooper test, Harvard Test, AAHPER Test, Queen College Test
- 3.4 Flexibility – Sit & Reach Test, Bend & reach Test, Coordination – Balancing on the Beam

**PRACTICAL**  
**TESTS, MEASUREMENTS AND EVALUATION: Athletics**  
**Course CODE: BSC/DSC(P)/04A**

| Course Code    | Course Name                                   | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|----------------|---|--------|----------------|----------------|----------------|-------------|
| BSC/DSC(P)/04A | Tests, Measurements and Evaluation: Athletics | 1      | 32             | 10             | 15             | 25          |

**UNIT-I**

- 1.1. Administration of AAHPER youth fitness test
- 1.2. Coopers 12 minutes run-walk test
- 1.3. Harvard step test
- 1.4. Tuttle pulse ratio test

**UNIT-II**

- 2.1. 1 RM strength test
- 2.2. Explosive strength test
- 2.3. Flexibility test
- 2.4. Speed test

**Suggested Readings**

1. Barron, H. M., & Mchee, R. (1997). A practical approach to measurement in physical education. Philadelphia: Lea and Febiger.
2. Barron, H.M. & Mchee, R. (1997). A Practical approach to measurement in physical education. Philadelphia: Lea and Febiger.
3. Kansal, D.K. (1996). Test and measurement in sports and physical education. New Delhi: D.V.S. Publications.
4. Mathews, D.K., (1973). Measurement in physical education, Philadelphia: W.B. Saunders Company.
5. Pheasant, S. (1996). Body space: anthropometry, ergonomics and design of work. Taylor & Francis, New York.
6. Phillips, D. A., & Hornak, J. E. (1979). Measurement and evaluation in physical education. New York: John Wiley and Sons.
7. Sodhi, H.S., & Sidhu, L.S. (1984). Physique and selection of sports- a kinanthropometric study. Patiala: Punjab Publishing House.

**Semester – VI**  
**PRACTICAL**  
**GENDER BASED SPORTS TRAINING: Athletics**  
**COURSE CODE: BSC/CCP/604A**

| <b>Course Code</b> | <b>Course Name</b>                         | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|--------------------|--|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| BSC/CCP/604<br>A   | Gender Based Sports<br>Training: Athletics | 4             | 128                   | 50                    | 50                    | 100                |

**Learning Outcomes**

- Understand gender-based sports training in athletics
- Understand the health historical background of female athletes.
- To understand the knowledge of management

**UNIT-I**

**Health and History background**

- 1.1. Review of history and health records of Women Athletes
- 1.2. Key areas to be keep in your mind (physical, physiological, mental, emotional)
- 1.3. Talent identification for the female athletes
- 1.4. Preparing training plan for the female athletes

**UNIT-II**

**Women Athletes**

- 2.1 Body composition and Anatomical and physiological difference
- 2.2 Strength and Power difference of male and female athletes
- 2.3 Resistance training for women athletes
- 2.4 Flexibility training for Women athletes

**UNIT-III**

**Fitness Components for women athletes and assessment**

- 3.1 Strength abilities and test
- 3.2 Endurance abilities and test
- 3.3 Speed abilities and test
- 3.4 Coordinative and flexibility abilities and strength

**UNIT-IV**

**Training for Women athletes**

- 4.1 Characteristics during developmental stages
- 4.2 Physical fitness and conditioning programme
- 4.3 Training programme for various age group
- 4.4 Training Programme for elite athletes

**Evaluation Total Mark 100**

| Evaluation criteria                                    | Internal Assessment | External Assessment |
|--|---------------------|---------------------|
| Designing training programme for women (different age) | 20Marks             | 20Marks             |
| Preparing Coaching schedule                            | 20 marks            | 20 marks            |
| Record book and Viva                                   | 10 Marks            | 10Marks             |
| Total  | 50marks             | 50 marks            |



**Semester – VI**  
**Practical: ATHLETICS**  
**COURSE CODE: BSC/CCP/605A**

| Course Code      | Course Name          | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|------------------|----------------------|--------|----------------|----------------|----------------|-------------|
| BSC/CCP/605<br>A | Practical: Athletics | 6      | 192            | 75             | 75             | 150         |

**UNIT-I**

**High Jump**

- 1.1 Skill practice of High jump
- 1.2 Proper explanation with mechanical analysis
- 1.3 Fault correction
- 1.4 Officiating Practice

**UNIT-II**

**Long Jump**

- 2.1 Skill Practice of Long Jump
- 2.2 Proper explanation with mechanical analysis
- 2.3 Fault correction
- 2.4 Officiating practice

**UNIT-III**

**Triple jump**

- 3.1 Skill Practice of Tripple Jump
- 3.2 Proper explanation with mechanical analysis
- 3.3 Fault correction
- 3.4 Officiating practice

**UNIT-IV**

**Huddles**

- 4.1 Skill practice of Hurdles
- 4.2 Proper explanation with mechanical analysis
- 4.3 Fault correction
- 4.4 Officiating practice

**Evaluation Total Mark 100**

| Evaluation criteria                   | Internal Assessment | External Assessment |
|---------------------------------------|---------------------|---------------------|
| Skill proficiency                     | 20Marks             | 20Marks             |
| Fault correction and training plan    | 20 marks            | 20 marks            |
| Officiating Proficiency of the events | 20 marks            | 20 marks            |
| Record book and Viva                  | 15 Marks            | 15Marks             |
| Total                                 | 75marks             | 75 marks            |

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**SEMESTER – VII**

| <b>Course Code</b>      | <b>Course Name</b>                          | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|-------------------------|---|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| <b>THEORY</b>           |   |               |                       |                       |                       |                    |
| BSC/CC/701A             | Team Preparation and Match Analysis         | 3             | 32                    | 30                    | 45                    | 75                 |
| BSC/CC/702              | Community Coaching                          | 3             | 32                    | 30                    | 45                    | 75                 |
| <b>SPORTS PRACTICAL</b> |   |               |                       |                       |                       |                    |
| BSC/CCP/701A            | Team Preparation and Match Analysis         | 4             | 128                   | 50                    | 50                    | 100                |
| BSC/CCP/702A            | Internship                                  | 8             | 256                   | 50                    | 150                   | 200                |
| BSC/CCP/703A            | Aged People Sports Training: Athletics      | 4             | 128                   | 50                    | 50                    | 100                |
| BSC/D/704A              | Dissertation: Research Proposal – Athletics | 3             | 48                    | 30                    | 45                    | 75                 |
| <b>TOTAL</b>            |   | <b>25</b>     | <b>640</b>            | <b>240</b>            | <b>385</b>            | <b>625</b>         |

NB: CC= Core Course, AECC=Ability Enhancement compulsory course,DSC= Discipline Specific Course,  
 GE=Generic Elective, SECC= Skill Enhancement core course, CCP= Core course practical

## SEMESTER – VII

### TEAM PREPARATION AND MATCH ANALYSIS

COURSE CODE: BSC/CC/701A

| Course Code | Course Name                         | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|-------------------------------------|--------|----------------|----------------|----------------|-------------|
| BSC/CC/701A | Team Preparation and Match Analysis | 3      | 48             | 30             | 45             | 75          |

#### COURSE LEARNING OUTCOME

**After completing this course, the students will be able to**

- Understand team preparation and match analysis
- Understand match preparation both individual and team sports
- Understand importance of pre match, in game and post-match
- Understand coach analysis intervention system

#### UNIT-I

##### Introduction to Team Preparation

- 1.1. Importance of team preparation and Match analysis
- 1.2. Team preparation for the competition period and competition schedule days
- 1.3. Match analysis its meaning, Need and importance of Match analysis
- 1.4. Equipment and technology required in match analysis

#### UNIT-II

##### Match Preparation Training both Individual and Team Sports

- 2.1. Team work and Tactics familiarity
- 2.2. Preparing alternate tactics both individual and team sports
- 2.3. Work, rest intensity training
- 2.4. Building targets into your training sessions

## UNIT-III

### Match Analysis

3.1 Coach Analysis Intervention System (CAIS)

3.2 Match analysis pre, during and post-match

3.3 Qualitative and quantitative analysis

3.4 Inclusion of Computer & Video Technology, Match analysis software



## PRACTICAL

### Team Preparation and Match Analysis

COURSE CODE: BSC/CC(P)/701A

| Course Code    | Course Name                         | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|----------------|-------------------------------------|--------|----------------|----------------|----------------|-------------|
| BSC/CC(P)/701A | Team Preparation and Match Analysis | 1      | 32             | 10             | 15             | 25          |

#### UNIT-I

- 1.1 Video presentation and match analysis technology by modern software
- 1.2 Showing presentation on match analysis pre competition and during completion
- 1.3 Using video technology in individual and team sports
- 1.4 Mechanical analysis of sports movement and fault correction

#### UNIT-II

- 2.1 Match preparation training schedule and tactics in individual sports
- 2.2 Match preparation training schedule and tactics in team games
- 2.3 Use of Coach Analysis Intervention System (CAIS)
- 2.4 Application of Modern Sports Officiating Technology

**SEMESTER – VII**  
**COMMUNITY COACHING**  
**COURSE CODE: BSC/CC/702**

| Course Code | Course Name        | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|--------------------|--------|----------------|----------------|----------------|-------------|
| BSC/CC/702  | Community Coaching | 3      | 48             | 30             | 45             | 75          |

**COURSE LEARNING OUTCOME:**

After completing this course, the students will be able to:

- Understand about community coaching
- Understand differentiation between community coaching and other types of coaching
- Volunteer services to the community for enhancement of societal value of sports
- Benefit of community coaching for society

**Unit-I**

**Introduction of Community Sports Coaching**

- 1.1 Meaning and definition of community coaching
- 1.2 Need and importance of Community coaching
- 1.3 Scope of community coaching
- 1.4 Differentiation between community coaching and other types of coaching

**Unit-II**

**Methods of Sports Coaching in Community**

- 2.1 Framework for Coaching in Community
- 2.2 Coaching for Relationships and Coaching for Reflection
- 2.3 Coaching for Results and Coaching for Reach
- 2.4 Coaching for Resilience

**Unit-III**

**Community Coaching and Development of Society**

- 3.1 Counseling and motivating athletes and parents for participation in sports Community coaching in Society development
- 3.2 Personal and transferability Developments
- 3.3 Life Skill Developments
- 3.4 Coaching Benefits of Communities

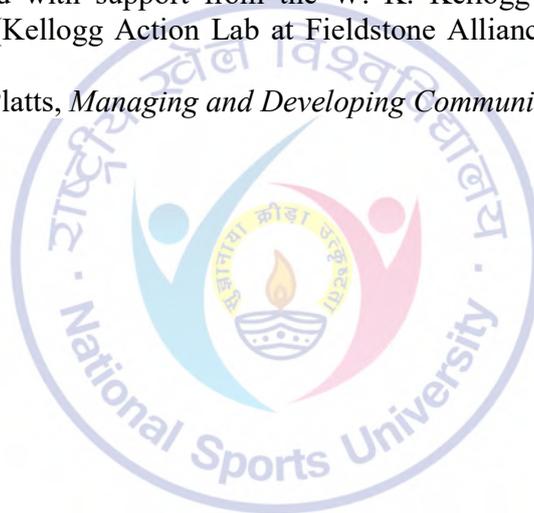
## Unit-IV

### Community Development: Role of Sports

- 4.1. Community Development through Sports for all initiative; Planning and execution.
- 4.2. Role of Community Coaching Organizations: Economic value, Health and environmental benefits, and social importance.
- 4.3. Art of counseling for active leaving and sports participation of novice participation
- 4.4. Art of effective communication for parents and spectators for participation in sports

### Suggested Reading

1. *Community Coaching Development, Khelo India schemes*, Government of India Ministry of Youth Affairs and Sports-2019.
2. Mary Emery, PhD, Ken Hubbell and Becky Miles-Polka, *A Field Guide to Community Coaching*, Published with support from the W. K. Kellogg Foundation, the Annie E. Casey Foundation, (Kellogg Action Lab at Fieldstone Alliance, and the Northwest Area Foundation-2011)
3. Rob Wilson, Chris Platts, *Managing and Developing Community Sport*, Published, 2018, CRC Press.



**Semester – VII**  
**PRACTICAL**  
**INTERNSHIP**  
**COURSE CODE: BSC/CCP/702A**

| <b>Course Code</b> | <b>Course Name</b> | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|--------------------|--------------------|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| BSC/CCP/702<br>A   | Internship         | 8             | 256                   | 50                    | 150                   | 200                |

Internship is an important component of sport coaching that provides students with the opportunity to gain applied practical experience in the field of sport coaching. It allows a student to employ what is learned in class in a supervised environment, which is critical in order to further develop professional skills and assure quality practice. Each student admitted to the B.Sc. in Sports Coaching course shall undergo 8 Credits (256 hours) compulsory internship programme at SAI Centres under Ministry of Youth Affairs and Sports (MYAS). The internship programme shall be of 200 marks.

**LEARNING OBJECTIVES OF INTERNSHIP:**

**The internship would examine the implementation of curriculum-based knowledge acquired by the Under Graduate Students which includes the following learning objectives:**

- Theories about coaching requirement and relevance for the sports and exercise participants.
- The social context within which sport coaching is applied.
- Methods and ways to carry out studies in the sports coaching with which the student shall be able to reflect upon the way these methods are applied for Sport Coaching as a profession.
- To acquire knowledge of the challenges faced by sports coaches and the ways to address them.

**ASSESSMENT CRITERIA FOR INTERNSHIP:**

| <b>Sr. No.</b>                    | <b>Please evaluate this student intern on the following items:</b>  | <b>Max. Marks</b> |
|-----------------------------------|---|-------------------|
| 1.                                | Arrived to work on-time (Punctuality, sincerity, dedication and devotion towards work)                                    | 15                |
| 2.                                | Behaved in a professional manner and dealing with players at SAI Centre   | 15                |
| 3.                                | Effectively performed Assignments given by Chief Coach/ Senior Coach/Asst. Coach of SAI.                                  | 15                |
| 4.                                | Communication skills PPT presentation to Players of the Centre (Sports related topic)                                     | 15                |
| 5.                                | Teaching lesson Ability (5 lesson)  | 15                |
| 6.                                | Coaching lesson Ability (5 lesson)  | 15                |
| 7.                                | Warming up (General & Specific), Cooldown and Conditioning class taken Ability  | 15                |
| 8.                                | Officiating ability of the Game   | 15                |
| 9.                                | Observation of records and register of the SAI Center and report writing on records and registers                         | 15                |
| 10.                               | Observation of on Maintenance of Equipment and Play fields (Report writing about Maintenance of Play field and equipment) | 15                |
| <b>Total</b>                      |   | <b>150</b>        |
| <b>INTERNAL ASSESMENT</b>         |   | <b>50</b>         |
| <b>TOTAL MARKS FOR INTERNSHIP</b> |   | <b>200</b>        |

## SEMESTER – VII

### AGED PEOPLE SPORTS TRAINING: Athletics

#### COURSE CODE: BSC/CCP/703A

| Course Code      | Course Name                               | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|------------------|---|--------|----------------|----------------|----------------|-------------|
| BSC/CCP/703<br>A | Aged People Sports Training:<br>Athletics | 4      | 128            | 50             | 50             | 100         |

#### Learning Outcomes

- To understand health and history background of aged people
- To understand systematization of sports training
- To develop fitness components of aged people
- To develop different training plan for Aged People

#### UNIT-I

##### Health and History background

- 2.1. Review of history and health records of an aged people
- 2.2. Making plan for the different aged people
- 2.3. Recreational Sports for Aged people
- 2.4. Healthy diets for aged people

#### UNIT-II

##### Systematization of Sports Training Process

- 2.1 Basic training
- 2.2 Advanced (Intermediate) training
- 2.3 High Performance training
- 2.4 Training programme for aged athletes

#### UNIT-III

##### Fitness Components test for aged people

- 3.1 Strength test and selected weight training programme
- 3.2 Endurance Test and endurance training development
- 3.3 Speed test and development of speed
- 3.4 Coordinative and flexibility test and development training

## UNIT-IV

### Training for Masters Athletic meet

- 4.1 Preparatory period for master athletes
- 4.2 Competition period training
- 4.3 Training intensity and volume for masters athletes
- 4.4 Psychological preparation for master Athletes

### Evaluation Total Mark 100

| Evaluation criteria   | Internal Assessment | External Assessment |
|---|---------------------|---------------------|
| Designing fitness and conditioning for masters athletes           | 15 Marks            | 15 Marks            |
| Designing coaching programme                                      | 15 Marks            | 15 Marks            |
| Designing Training programme                                      | 10 Marks            | 10 Marks            |
| Motor quality development training and administration proficiency | 10 Marks            | 10 Marks            |
| Total   | 50 Marks            | 50 Marks            |



**SEMESTER – VII**  
**DISSERTATION: RESEARCH PROPOSAL - Athletics**

**COURSE CODE: BSC/D/704A**

| <b>Course Code</b> | <b>Course Name</b>                          | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|--------------------|---|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| BSC/D/704A         | Dissertation: Research Proposal - Athletics | 3             | 48                    | 30                    | 45                    | 75                 |

**LEARNING OBJECTIVES**

To enable the students to develop skills and competencies for conducting rigorous, theoretically correct and practically relevant research in Bachelors of Science Sports Coaching.

**LEARNING OUTCOME:**

- By completing the Bachelors thesis, students will demonstrate their academic ability, i.e., their ability to think critically, write according to academic standards, and conduct independent research that is critical, methodical, and systematic.
- A student admitted to B.Sc. Sports Coaching must submit his/her Synopsis and get it approved by the Head of Department on the recommendation of Department Research Committee (DRC).
- The beginning of the process of Dissertation will start in the beginning of VII Semester in form of preparation and submission of synopsis, facing and getting final approval from the DRC.
- The Final Dissertation must be submitted not less than one week before the beginning of the VIII Semester Examination.
- The candidate has to face the Viva-Voce examination conducted by DRC.

**Structure of the Synopsis:**

- 1. Title Page**
  - 2. Certificate**
  - 3. Acknowledgements**
  - 4. Table of Contents**
- ▶ Chapter 1: Introduction
  - ▶ Chapter 2: Review of Literature
  - ▶ Chapter 3: Methods

References

**Evaluation:**

**Credit: 3**

**75 Marks**

The students will present their Synopsis through PPT in front of Supervisor and Departmental Research Committee (DRC). Both Supervisor and DRC will evaluate their synopsis presentation and Viva.

**Internal Assessment 30 marks (Supervisor)**

**External Assessment 45 marks (DRC)**

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**SEMESTER – VIII**

| <b>Course Code</b>      | <b>Course Name</b>                             | <b>Credit</b> | <b>Teaching Hours</b> | <b>Internal Marks</b> | <b>External Marks</b> | <b>Total Marks</b> |
|-------------------------|--|---------------|-----------------------|-----------------------|-----------------------|--------------------|
| <b>THEORY</b>           |  |               |                       |                       |                       |                    |
| BSC/CC/801              | Science of Yoga                                | 3             | 48                    | 30                    | 45                    | 75                 |
| BSC/CC/802              | Introduction to Paralympic and Special Olympic | 3             | 48                    | 30                    | 45                    | 75                 |
| <b>PRACTICAL</b>        |  |               |                       |                       |                       |                    |
| BSC/CC(P)/801           | Science of Yoga                                | 1             | 32                    | 10                    | 15                    | 25                 |
| BSC/CC(P)/802           | Introduction to Paralympic and Special Olympic | 1             | 32                    | 10                    | 15                    | 25                 |
| <b>SPORTS PRACTICAL</b> |  |               |                       |                       |                       |                    |
| BSC/CCP/803A            | Advance Coaching Lesson: Athletics             | 6             | 192                   | 75                    | 75                    | 150                |
| BSC/CCP/804A            | High Performance Sports Training: Athletics    | 4             | 128                   | 50                    | 50                    | 100                |
| BSC/D/805A              | Dissertation: Athletics                        | 7             | 112                   | 75                    | 100                   | 175                |
| <b>TOTAL</b>            |  | <b>25</b>     | <b>592</b>            | <b>280</b>            | <b>345</b>            | <b>625</b>         |

NB: CC= Core Course, AECC=Ability Enhancement compulsory course,DSC= Discipline Specific Course, GE=Generic Elective, SECC= Skill Enhancement core course CCP= Core course practical, D = Dissertation

## SEMESTER – VIII

### SCIENCE OF YOGA

COURSE CODE: BSC/CC/801

| Course Code | Course Name     | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|-----------------|--------|----------------|----------------|----------------|-------------|
| BSC/CC/801  | Science of Yoga | 3      | 48             | 30             | 45             | 75          |

#### LEARNING OUTCOME

After completing this course, the students will be able to acquire knowledge about

- Understand the concept of yoga and historical background.
- Understand different school of yoga
- Practical and theoretical knowledge about yogic practice of Kriyas, asanas, pranayamas, and different meditation techniques.

#### UNIT – I

##### Introduction and historical background of Yoga

- 1.1 Meaning, Definitions and Historical background of Yoga
- 1.2 Aim & Objectives of Science Yoga, Ayurveda: Yoga and Vayayama
- 1.3 Contribution of ancient Yogic text for the development of Science of Yoga
- 1.4 Application of Yoga in modern society

#### UNIT – II

##### Different Schools of Yoga

- 2.1 Introduction to different schools of Yoga.
- 2.2 The Astanga Yoga: Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana and Samadhi.
- 2.3 Types of Yoga: Karma Yoga, Bhakthi Yoga, Jnana Yoga, Raja Yoga, Hatha Yoga etc.
- 2.4 Meditation, Strategies for relaxing body and mind, Various method of relaxation techniques

#### UNIT – III

##### Introduction to various practices of Yoga and its implications in sports specific training

- 3.1 Shatkarma – Meaning, Types, techniques, Precautions and Benefits
- 3.2 Asanas - Meaning, Definitions, Types, Techniques, Precautions and benefits
- 3.3 Pranayama - Meaning, Definitions, Types, Techniques, Precautions and benefits
- 3.4 Mudras – Meaning, Types, Technique, Precautions and Benefits

#### UNIT-IV

##### Yoga Art and Science

- 4.1 Yoga is an art, Science and Philosophy: a critical analysis
- 4.2 Difference between yogic practices and physical exercises
- 4.3 Yoga for lifestyle diseases
- 4.4 Application of Yoga in sports performance

## PRACTICAL

### Science of Yoga

COURSE CODE: BSC/CC(P)/801

| Course Code | Course Name     | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|-----------------|--------|----------------|----------------|----------------|-------------|
| BSC(P)/801  | Science of Yoga | 1      | 32             | 10             | 15             | 25          |

#### Unit-I

##### Yogic Kriya, Yogasana and Mudras and its practices and implication in Sports

- 1.1. Kriya-kapalbhati, Trataka, Nauli
- 1.2. Asana- Standing, Sitting, Laying
- 1.3 Surya Namaskar and Chandra Namaskar
- 1.4 Mudras

#### Unit- II

##### Pranayama and Dhayana and its practices and implication in Sports

- 2.1. Pranayama- Balancing, Heating, Cooling
- 2.2. Dhyana for beginners and intermediates
- 2.3 Stress management through yoga
- 2.4 Development of concentration through yoga

#### SUGGESTED READING

1. Muktibodhananda S. (2013). *Hatha Yoga Pradipika*, Munger, Bihar School of Yoga Publication (3<sup>rd</sup> ed.). ISBN-10:9788185787381
2. Niranjana S. S. *Gheranda Samhita*. (2012). Munger, Bihar School of Yoga. Publication ISBN-9789381620199
3. Maheshananda S, Sharma B.R., Sahay GS, Bodha R.K, Jha B.L, Bharadwaj C.L. (2009). *Siva Samhita*. Lonavalla, Kaivalyadhama Publication. ISBN: 9788189485535
4. Maheshananda S, Sharma B.R, Sahay G.S. (2005). *Vasistha Samhita*. Lonavalla Kaivalyadhama Publication. ISBN: 8189485377
5. Kuvalayananda S. (1993). *Asanas*. Lonavalla, Kaivalyadhama Publication, India.
6. Satyananda S.S. (2004). *Asana Pranayama Mudra Bandha*, Munger, Yoga Publications Trust, Bihar, India. ISBN: 8186336141
7. Nagarathna R, Nagendra H.R. (2008). *Yoga for Promotion of Positive Health*. Vivekananda Yoga Research Foundation Swami Vivekananda Yoga Prakashana. ISBN: 9788187313083
8. Iyengar B.K.S. (2003). *Light on Yoga*, USA, HarperCollins. ISBN: 8172235011
9. Mondal S. (2013). Science of exercise: ancient Indian origin. *J Assoc Physicians India* . 61: 40-42.

## SEMESTER – VIII

### INTRODUCTION TO PARALYMPIC AND SPECIAL OLYMPIC

COURSE CODE: BSC/CC/802

| Course Code | Course Name                                    | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|--|--------|----------------|----------------|----------------|-------------|
| BSC/CC/802  | Introduction to Paralympic and Special Olympic | 3      | 48             | 30             | 45             | 75          |

#### COURSE LEARNING OUTCOME:

After completing this course, the students will be able to

- To understand the Paralympic sport, rules & regulations and also learn the history of Paralympic
- Understand the classification and laws of Paralympic sports
- Understand the Special Olympic rules and regulation.
- Understand Special Olympic sports events, equipment and training.

#### COURSE CONTENTS

##### UNIT-I

#### Paralympic Sports

- 1.1 History of Paralympic movement and Special Olympics.
- 1.2 Rules and regulations of Paralympic.
- 1.3 Paralympic Committee: International and National
- 1.4 Ceremonies of Paralympic: opening, closing and event management

##### UNIT-II

#### Paralympics Sports Classification

- 2.1 Introduction to Paralympic sports classification.
- 2.2 Eligibility criteria: medical classification & functional classification.
- 2.3 Steps of Classification: eligible impairment, minimum disability criteria and sport class.
- 2.4 Category of summer & winter Paralympic

## **UNIT-III**

### **Paralympic Laws**

- 3.1 System of Paralympic Governance on National and International Level.
- 3.2 Fundamental principles of Paralympic movement.
- 3.3 Human Right in Paralympic context.
- 3.4 Performance enhancement regulation in Paralympic context: medicine, equipment and new technology.

## **UNIT-IV**

### **Special Olympic Sports Events, Equipment and Training**

- 4.1 Special Olympic Sports events and its Classification, rules and regulation.
- 4.2 Special Olympic Sports Equipment and its utilization
- 4.3 Special Olympic Sports Training Methodology and New Technology
- 4.4 Preparation of Officials, Coaches and Supporting Staff for Special Olympic



## PRACTICAL

### INTRODUCTION TO PARALYMPIC AND SPECIAL OLYMPIC

Course CODE: BSC/CC(P)/802

| Course Code   | Course Name                                    | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|---------------|--|--------|----------------|----------------|----------------|-------------|
| BSC/CC(P)/802 | Introduction to Paralympic and Special Olympic | 1      | 32             | 10             | 15             | 25          |

#### UNIT-I

- 1.1 Designing various types of exercises for impaired muscle power person
- 1.2 Designing various types of exercise for limb deficiency person
- 1.3 Designing various types of exercise and sports for Paralympic Sports Person
- 1.4 Paralympic Sports Events and planning.

#### UNIT- II

- 2.1 Designing various types of exercise and Sports for Hearing Impairment
- 2.2 Designing different types of exercise and Sports for Vision Impairment
- 2.3 Designing different types of exercise and Sports for Intellectual Impairment
- 2.4 Special Olympic Sports events

#### Assessment of individual potential and design special training plan

#### SUGGESTED READING

1. "Assistive technologies". Spaulding Framingham. Retrieved September 5, 2012.
  - a. 2004. 376 ps.
2. Anoop Jain, "Adapted Physical Education" Sports Publications, Ashok Vihar Delhi-52
3. Arthur G. Miller & James, "Teaching Physical Activities to impaired youth" John Wilag& Sons Inc. Canada.
4. Arthur S. Daniels & Euilya, "Adapted Physical Education", Harpet& Row Publisher- New York.
5. Auxter, Byler, Howtting, "Adapted Physical Education and reactions" Morbey-St. Louis Missouri.
6. Bailey S. Athlete First: A History of Paralympic Movement. Wiley, 2008.
7. Brittain, Ian, Beacom, Aaron (Eds.), "The Palgrave Handbook of Paralympic Studies", Palgrave Macmillan, UK.
8. Elgar Publishing, 2011. 584 ps.
9. Ian S. Blackshaw. International Sports Law: An Introductory Guide. Springer, 2017.
10. James A. R. Nafziger, Stephen F. Ross. Handbook on International Sports Law. Edward
11. K. Park, "Preventive Social Medicine M/s BanaridasBhanot Publishers Prem Nagar Jabalpur.

12. Nafziger, James A. R.. International sports law. Ardsley, N.Y. : Transnational Publishers,
13. Official Website of the Paralympic Movement • IPC, <https://www.paralympic.org/>.
14. Physical fitness: how to develop. New Delhi: Friends Publication.
15. Ronald W. French, & Paul J., “Special Physical Education”, Charles E. Merrics Publishing Co.Edinburgh, Ohio.
16. Ryan Gauthier. The International Olympic Committee, Law, and Accountability. Taylor& Francis, 2017. 220 ps.
17. Scherer, Marcia and Stefano Federici (2012). Assistive Technology Assessment Handbook. CRC Press. p. 425. ISBN 9781439838655.
18. Shekar KC, Adapted Physical Education (KhelSahitya Kendra: New Delhi)-2005
19. Sons, 2008 г. 302 ps.
20. Steve Bailey. Athlete First: A History of the Paralympic Movement. John Wiley &
21. Winnick JP, Adapted Physical Education and sport Human Kinetics USA, 2005 Uppal, A. K. (1990).



## SEMESTER – VIII

### ADVANCE COACHING LESSON: Athletics

#### COURSE CODE: BSC/CCP/803A

| Course Code      | Course Name                           | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|------------------|---------------------------------------|--------|----------------|----------------|----------------|-------------|
| BSC/CCP/803<br>A | Advance Coaching Lesson:<br>Athletics | 6      | 192            | 75             | 75             | 150         |

- The students will practice 15 coaching lessons for elite players.
- They will appear practical examination (Final Lesson) and evaluated by both internal and external examiner.

#### **Total marks 100**

(Internal Marks 50 and external Marks 50)

#### **Lesson plan:**Class formation

Introduction  
Demonstration  
Explanation  
Kinesiological and Mechanical analysis  
Rectification  
Performance analysis  
Lead up activities  
Class Dismissal

| Evaluation                                 | Internal assessment | External assessment |
|--|---------------------|---------------------|
| Class formation introduction and Reporting | 10 marks            | 10 marks            |
| Demonstration                              | 10 marks            | 10 marks            |
| Explanation                                | 10 marks            | 10 marks            |
| Rectification and class control            | 10 marks            | 10 marks            |
| Performance Analysis                       | 10 marks            | 10 marks            |
| <b>Total</b>                               | <b>50 Marks</b>     | <b>50 Marks</b>     |

**SEMESTER – VIII**  
**HIGHPERFORMANCE SPORTS TRAINING: Athletics**  
**COURSE CODE: BSC/CCP/804A**

| Course Code      | Course Name                                    | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|------------------|--|--------|----------------|----------------|----------------|-------------|
| BSC/CCP/804<br>A | High Performance Sports<br>Training: Athletics | 4      | 128            | 50             | 50             | 100         |

**Learning Outcomes**

- To help understand how to prepare training plans for high performance athletes
- To improve coaching for high performance athletes
- To help understand key areas for match performance analysis and corrections
- To help understand modern technology devices for match performance analysis

**UNIT-I**

**Training plan systems**

- 1.1.High performance Training plan in different events
- 1.2.Anaerobic training programs
- 1.3.High performance endurance training
- 1.4.High intensity speed training

**UNIT-II**

**Advanced Training**

- 2.1.Isometric Training
- 2.2.Plyometric Training
- 2.3.High Intensity Interval Training (HIIT)
- 2.4. Maximum and explosive Strength Training

**UNIT-III**

**Basic training analysis**

- 3.1. Striding length for sprinters, middle- and long-distance runner
- 3.2.Arm Footwork and pelvic tilt analysis for race walk and marathoner
- 3.3. Approach run and take off for jumpers, release in throwing events
- 3.4.Landing and execution of final movements.

**UNIT-IV**

**Competition performance analysis**

- 4.1 Biomechanical aspects of technique
- 4.2 Tactical performance during relay and batten exchange
- 4.3 Practical knowledge of software for performance analysis
- 4.4 Performance analysis of complicated movements in athletics

### **Suggested Reading: Athletics**

1. Tyson. P& Binder. D (2013), *Coaching Cross Country Successfully*, Human Kinetics.
2. Walter F.A.M (2008), *Coaching and Care of Athletics Performance*, Sports Education Technologies, New Delhi.
3. Wilber R.L. (2004), *Athletic Training and Athletic Performance*, Human Kinetics.
4. Zeigler E.F. (2008), *Applied Ethics for Sports & physical Activity Professionals*, Sports Education Technologies.
5. Oliver D. & Healy D. (2005), *Athletics Strength for Women*, Human Kinetics.
6. Jacoby E.D. & Fraley B. (1995), *Complete Book of Jump*, Human Kinetics.
7. Doherty K (2007), *Track and Field Omni Book, 5<sup>th</sup> Edition*, Tafnews Press.
8. USA Track and Field (2000), *USA Track and Field Coaching Manual*, Human Kinetics.
9. Webster F.A.M. (2007), *The Science of Athletics*, Sports Education Technologies.
10. Friel J. (2009), *The Triathletes Training Bible, 3<sup>rd</sup> Edition*, Velo Press
11. Martin D.E. & Coe P.N. (1997), *Better Training for Distance Runner, 2<sup>nd</sup> Edition*, Human Kinetics.
12. Benyo R. (1998), *Running Past 50*, Human Kinetics.
13. Kumar P. (2007), *Historical Development of Track and Field*, Friends Publication, New Delhi.
14. Puleo J., Milroy P. (2010), *Running Anatomy*, Human Kinetics.
15. Greene L., Pate R. (2004), *Training for Young Distance Runners, 2<sup>nd</sup> Edition*, Human Kinetics.
16. Freeman W.H. (2001), *Peak When It Comes Periodization for American Track and Field, 4<sup>th</sup> Edition*, Tafnews Press, Human Kinetics.
17. Friel J. (2009), *Triathlete Training Bible, 3<sup>rd</sup> Edition*, USA
18. Anderson O. (2013), *Running Science*, Human Kinetics.

## SEMESTER – VIII

### DISSERTATION: Athletics

#### COURSE CODE: BSC/D/805A

| Course Code | Course Name             | Credit | Teaching Hours | Internal Marks | External Marks | Total Marks |
|-------------|-------------------------|--------|----------------|----------------|----------------|-------------|
| BSC/D/805A  | Dissertation: Athletics | 7      | 112            | 75             | 100            | 150         |

### DISSERTATION

This document provides preparation for Dissertation including guidelines for structuring the contents. For style, structure and presentation of the Dissertation, students will consult their respective supervisors and refer to style manuals or reference guides lines given by University.

#### Preparation of Manuscript and Copies

The Dissertation needs to be prepared using a standard text processing software and must be printed in black text (color for images, if necessary) using a laser printer or letter quality printer in standard type face (Times New Roman/ Arial).

The Dissertation must be printed or photocopied on both sides of white paper. All copies of Dissertation pages must be clear, sharp and even, with uniform size and uniformly spaced characters, lines and margins on every page of good quality white bond paper of 75 gsm or more. **(How so ever the students are advised to prepare in the format given and submit in PDF Format to their respective Guide and to the Department duly signed by them, the hard copies as per the specification provided has to be submitted for record.)**

Dissertation should be free from typographical errors.

#### Binding

The student should submit the copies of the Dissertation in fully bound form (soft cover) or a partially bound form (coiled wire binding, clamping, or filing). Once the Dissertation is accepted, it is the student's responsibility to get it properly bound before depositing the required number of copies with the Department concerned. **The front cover of the bound copy should be the same as the title page of the Dissertation.** The front cover should have printing on the side to include the author's name, abbreviated thesis title (optional), degree, department, and the year.

**Note: The students will follow the guidelines for their Dissertation given by the University.**

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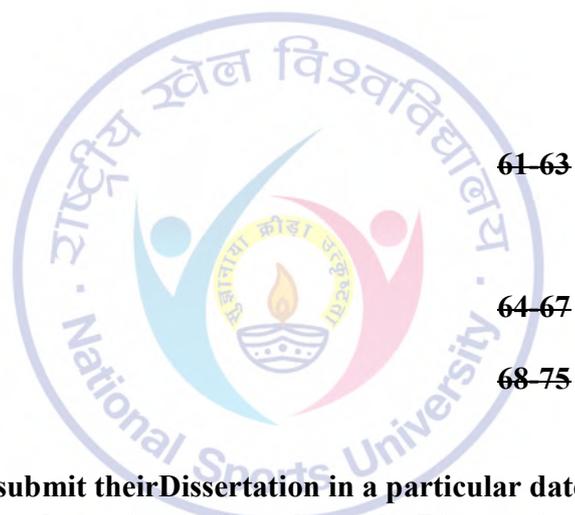
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**N.B.All the students will submit theirDissertation in a particular date notified by the HOD. Both supervisor and external examiner will evaluate the Dissertation. The student will present their chapters through power points.**

**Total Marks 175**

**Internal assessment: 75 Marks and External Assessment 100 Marks.**

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