

UNIVERSITY OF MUMBAI
No. UG/05 of 2014

CIRCULAR:-

The Principals of the affiliated Colleges in Arts, Science & Commerce and the Heads of Recognized Institutions concerned are hereby informed that the recommendation made by the Faculty of Arts at its meeting held on 26th February, 2014 has been accepted by the Academic Council at its meeting held 4th March, 2014 **vide** item No. 4.27 and subsequently approved by the Management Council at its meeting held on 4th April, 2014 **vide** item No.8 and that in accordance therewith, in exercise of the powers conferred upon Management Council under Section 55 (1) of the Maharashtra Universities Act, 1994, Regulations 8757, 8758, 8759, 8760 and 8761 relating to the Qualification of Teachers, Infrastructure, Scheme of Examination & Standard of passing respectively and the syllabus for Foundation Course in Physical Education as per the Choice Based Semester and Grading System for Sem. I and II of First Year programs of Arts/Science/Commerce faculties is introduced, which is available on the University's web site (www.mu.ac.in) and that the same has been brought into force with effect from the academic year 2014-15.

MUMBAI – 400 032
23rd June, 2014

Sd/-
REGISTRAR

To,

The Principals of the affiliated Colleges in Arts, Science & Commerce and the Heads of Recognized Institutions concerned.

A.C/4.27/04.03.2014
M.C/8/04.04.2014

No. UG/05 -A of 2014

MUMBAI-400 032

23rd June, 2014

Copy forwarded with Compliments for information to:-

- 1) The Deans, faculties of Arts, Science & Commerce,
- 2) The Professor-cum-Director, Institute of Distance & Open Learning (IDOL)
- 3) The Director, Board of College and University Development,
- 4) The Co-Ordinator, University Computerization Centre,
- 5) The Controller of Examinations.

Sd/-
Deputy Registrar
Under Graduate Studies

UNIVERSITY OF MUMBAI



Syllabus for First Year UG Programs of faculty of Arts, Commerce and Science

**Course: Foundation Course In Physical Education
(Inter-disciplinary Inter-faculty Course)**

w.e.f. Year 2014-15

(Semester I and Semester II)

(As per Choice based Credit and Grading System)

SYLLABUS FOR ALL UG PROGRAMS UNDER THE FACULTY OF ARTS, SCIENCE AND COMMERCE

Course: Foundation Course in Physical Education

Semester-I and Semester-II

1. Syllabus as per Credit based Semester and Grading System

- | | |
|--|--|
| i. Name of the Program: | : Foundation Course in Physical Education
F.Y.B.A. / B.Sc. / B.Com. |
| ii. Course Code | : UGPE101 and UGPE 102 |
| iii. Course Title | : Foundation Course in Physical Education |
| iv. Semester wise Course Content | : Semester I & Semester II |
| v. References and additional references: | As per course submitted |
| vi. Credit Structure | : 02 Credits per Semester |
| vii. No. of Hours per Unit | : As per Course submitted |
| viii. No. of Hours per week/semester | : 04 Lectures per week
60 Lectures per semester |
2. Scheme of Examination : As per course submitted
3. Special notes, if any : As below
4. Eligibility, if any : As decided by AC
5. Fee Structure : As decided by AC

IMPORTANT NOTE:-

It is pertinent to note that by taking the cognizance of importance of Health and Fitness in life, this kind of course is essential for each learner of UG level. In most of the Universities in India Viz. University of Pune, Shivaji University, Punjabi University, Calicut University, Punjab University, Goa University etc. this course is being treated as Foundation Course. Therefore, in our University it is expected to have this Foundation course in Physical Education as compulsory Course. However, in the meanwhile, as per the existing structure of the UG Programs, this course is suggested as optional/ elective Foundation Course to existing Foundation Course or other related subjects for all UG Programs under the faculty of Arts, Commerce and Science.

**REGULATIONS RELATED TO THE FOUNDATION COURSE IN PHYSICAL
EDUCATION FOR ALL UG PROGRAMS UNDER THE FACULTY OF ARTS,
COMMERCE AND SCIENCE**

(With effect from Academic Year 2014-15)

O._____ The bonafide students of all UG Programs in the faculty of Arts, Science and commerce are eligible to opt for Foundation course in Physical Education as a subject in place of Foundation Course in semester I, II, III and IV.

O._____ Learners opting for Foundation Course in Physical Education in the I Semester shall be allowed to change and opt for foundation course in the beginning of the II and/or III and/or IV semester for valid reason. The same may also be allowed in the I semester or even in the middle of any of the semesters, if the relevant ordinance/rules of the University for enrolment and/or attendance and/or granting of terms etc. permit so, at the material time.

O._____ Qualification of Teachers:

The colleges are expected to have at least one qualified Director of Physical Education and Sports. However, in the meanwhile, the teacher incharge of sports or coach or teacher appointed on clock hour basis or contract or visiting faculty having knowledge and at least PG qualification in the subject can be asked to undertake the work after attending workshop / orientation course (min. 7 days) conducted by the Sports Department of the University of Mumbai.

Further, for facilitating the smooth working of the practical part of the course, every class may be divided into group of 25 students and be placed under a leader who should help the staff member in the organization of practical work. It is better to organize orientation courses for leaders at the college level on the lines of orientation courses of the University.

O._____ Infrastructure:

a) Play Ground:

The colleges are expected to have the play ground and Gymkhana facility as per the norms, rules and regulation of the University and Government prescribed for the purpose from time to time.

However, in the meanwhile the colleges should conduct the maximum possible activities as prescribed in the syllabus by utilizing their available infrastructure including indoor hall, corridor, terraces or hiring nearby play ground etc. for the purpose. The Gym facility with enough equipments must be made available for the learners by the colleges.

b) Equipment:

The colleges are expected to procure the various games and sports equipments by making enough budget allocation from time to time.

R_____ The following shall be the syllabi for the Foundation Course in Physical Education of Semester I and Semester II:

• GOAL OF FOUNDATION COURSE IN PHYSICAL EDUCATION

To support the academic mission of the nation by producing good citizens with healthy body and sound mind having human values with civic responsibility.

SEMESTER – I

- | | |
|----------------------------------|---------------|
| • 04 hours per week for 15 weeks | • Hours : 60 |
| • Semester – I : 02 Credits | • Marks : 100 |

OBJECTIVES:

1. To understand the basic concepts of Health, Physical Education and Physical Fitness.
2. To familiarize the learner with different types of fitness, its parameters and wellness.
3. To give the knowledge about the exercise and its benefits.
4. To create awareness about own body functions through Physical Education and Exercise.
5. To acquire the knowledge pertaining to game and sports of the choice of the learner.

Unit-I Introduction to Basic Relevant concepts in Physical Education (05 Hours)

- a) Dimensions and determinants of Health, Fitness & Wellness
- b) Concept of Physical Education and its importance
- c) Concept of Physical Fitness and its types

- d) Concept of Physical Activity, exercise and its types & benefits

Unit-II Components of Physical Fitness

(04 Hours)

- a) Concept of components of Physical Fitness
- b) Concept and components of HRPF
- c) Concept and components of SRPF
- d) Importance of Physical Education in developing physical fitness components.

Unit-III Testing Physical Fitness

(05 Hours)

- a) Tests for measuring Cardiovascular Endurance
- b) Tests for measuring Muscular Strength & Endurance
- c) Tests for measuring Flexibility
- d) Tests for measuring Body Composition

Unit-IV Effect of Exercise on various Body System

(04 Hours)

- a) Effect of exercises on Musculoskeletal system
- b) Effect of exercises on Circulatory System
- c) Effect of exercises on Respiratory System
- d) Effect of exercises on Glandular System

SEMESTER – II

- **04 hours per week for 15 weeks**
- **Semester–II : 02 Credits**

- **Hours : 60**
- **Marks : 100**

Objectives

1. To acquire knowledge and skill of various exercises in order to improve physical fitness.
2. To understand the principles exercises prescription and scheduling.
3. To know the historical and philosophical aspect of Yoga education.
4. To gain the knowledge pertaining to obesity management and communicable diseases.
5. To inspire the learners for further achievement in their games /sports /activity of their own choice.

- I Development of Fitness (05 Hours)**
- Benefits of physical fitness and exercise and principles of physical fitness
 - Calculation of fitness index level 1-4
 - Waist-hip ratio Target Heart Rate, BMI and types and principles of exercise (FITT)
 - Methods of training – continues, Interval, circuit, Fartlek and Plyometric
- II Health, Fitness and Diseases (04 Hours)**
- Definition of obesity and its management
 - Communicable diseases, their preventive and therapeutic aspects
 - Factors responsible for communicable diseases
 - Preventive and therapeutic aspect of Communicable and non- communicable diseases
- III Yoga Education (05 Hours)**
- Meaning and history of yoga
 - Ashtang yoga and types of yoga
 - Types of Suryanamaskar and Technique of Pranayam
 - Benefits of Yoga
- IV Daily Schedule of Achieving Quality of Life and Wellness: (04 hours)**
- Daily schedule based upon one's attitude, gender, age & occupation.
 - Basic – module: - Time split for rest, sleep, diet, activity & recreation.
 - Principles to achieve quality of life:- positive attitude, daily regular exercise, control over food habits & healthy hygienic practices.

R_____ Scheme of Examination

➤ INTERNAL ASSESSMENT (40 Marks)

SEMESTER –I *(Continuous Evaluation during practical sessions conducted for 27 hours)*

- A learner willing to participate in inter-collegiate/ inter university competitions of any game and sports conducted by the University of Mumbai will be evaluated for 20 marks on the basis of his attendance, sincerity and performance during the training / practice / coaching sessions / camps conducted by the college/University for at least 10 days. It is expected that the colleges should organize training / practice / coaching sessions / camps of various games and sports as per the choice of the learner. However, due to unavailability of the same in his / her college if a learner participates in the training / practice / coaching sessions / camps organized by other organizations or clubs of sports and games, may be considered for evaluation

for 20 marks on the basis of the proofs of attendance and participation submitted by a learner.

OR

A learner will prepare and submit record book up to 20 pages on any one of the sports/games of his own choice by considering the following points:

- Origin and history of the game/sports
 - Rules and regulation of game/sports
 - Awards and information of any two renowned players of the game / sports.
 - Figures and diagrams may be given wherever necessary.
 - The record book will be assessed by concern teacher / incharge for **20 marks**.
- b) A learner will be practically taught different exercises including suryanamaskara for developing their Health Related Physical Fitness (HRPF) by conducting practical sessions for atleast 10 hours (one hour each) and will be assessed by the concern teacher for **marks out of 10** on the basis of his attendance, sincerity and performance.
- c) Physical fitness examination for **10 marks** will be conducted as per the **Annexure I**.

SEMESTER –II (*Continuous Evaluation during practical sessions conducted for 27 hours*)

- a. A learner willing to participate in inter-collegiate/ inter university competitions of any game and sports conducted by the University of Mumbai will be evaluated for 20 marks on the basis of his attendance, sincerity and performance during the training / practice / coaching sessions / camps conducted by the college/University for at least 10 days. It is expected that the colleges should organize training / practice / coaching sessions / camps of various games and sports as per the choice of the learner. However, due to unavailability of the same in his / her college if a learner participates in the training / practice / coaching sessions / camps organized by other organizations or clubs of sports and games, may be considered for evaluation for 20 marks on the basis of the proofs of attendance and participation submitted by a learner.

OR

A learner will prepare and submit one assignment book on the games/sports of his own choice regarding the place of India in Olympic Games (up to 20 pages) by considering following points: **(20 marks)**

- Details of first participation.
- Olympic wise achievements and place.
- Present status of India in that game.

- b. A learner will be taught the following yogic practices by conducting practicals for at least 10 sessions (one hour each) and will be assessed by the concern teacher for marks out of **20** on the basis of his attendance, sincerity and performance.

• **Yogic Practices**

Bhujangasana, Ardhashalabhasana, Ardhashalasana, Vakrasana, Chakrasana (Side bending), Paschimottanasana, Yoga Mudra, Ujjayi Pranayama, Omkar and Dhyana.

(Note:- The said yoga practical sessions should be conducted in a such way that every learner must realize its effects as well as should make it as a part of his/her life style).

➤ **SEMESTER END EXAM : (Semester I & Semester II) (60 Marks each)**

- Duration - 02 Hours
- **Questions paper pattern** : - There shall be four questions each of 15 marks. All questions shall be compulsory with internal choice within the questions. Question may be sub divided into sub-questions a, b and c only. There shall be 01 question on each unit of the course.

➤ **Standard of Passing the Examination**

- A learner shall have to obtain a minimum of 40 % marks in aggregate to qualify the each course where the course consists of internal assessment and semester end examination.
- A learner shall obtain a minimum of 40 % marks(i.e. **16** out of **40**) in the internal assessment and obtain a minimum of 40 % marks (i.e. **24** out of **60**) in semester end
- To pass the course and minimum grade C shall be obtained in each project wherever applicable in the Particulars semester.

Reference Books for Semester I and Semester II

1. Adams, William.C – Foundation of Physical Education Exercises and Sports Sciences, Lea and Febigor, Philadelphia, 1991.
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3. American College of Sports Medicine, ACSM's, Guidelines for Exercise Testing and Prscription. (2013) Ninth Edition, Lippian Cott Williams and Wilkins.
4. American College of Sports Medicine, ACSM's Resource Manual for Guidelines for Exercise Testing and Prscription. (2006) 5th Ed., Lippian Cott Williams and Wilkins, 2006.
5. Beashel, P.,& Taylor, J. (1996). Advance Studies in Physical Education and Sports. U.K.: Thomas Nelson and Sons Ltd.
6. Bucher, C.A. (1995). Foundation of Physical Education (12th Ed.) USA : St. Louis, C.V. Mosloy.
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8. Daryl S. (1994). Introduction to physical education, fitness and sports (2nd ed.). London: Mayfield publishing company.
9. Dheer, S.D.(1991). Introduction to Health Education. New Delhi : Friends Publication.
10. Dr. A.K.Uppal& Dr. G. P. Gautam (2004). Physical education and Health. Delhi: Friends publisher.
11. Dr. Gharote M. L; Teaching Methods for Yogic Practices. – 2nd Ed., Kaivalyadham Samiti, Lonavala- 2001.
12. Dr. Gharote M. L; Guideline for Yogic Practices – 2nd Ed., The Lonavala Yoga Institute (India), Lonavala- 2007
13. Greenberg, Dintiman, Oakes. (2004). Physical Fitness & wellness.(3rd ed.) IL:Human kinetics.
14. Halfield, F.C. (2001). Fitness : The Complete Guide. USA : International Sports Science Association.
15. Jackson, A.L., Morrow, J.R. (2004). Physical activity for health & fitness. IL:Human kinetics.
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18. Lock Hurt and others – Anatomy of the human body, Feber & Feber Oxford University, 1975
19. Muller, J. P.(2000). Health, Exercise and Fitness. Delhi : Sports.
20. Murgesh N. – Anatomy, Physiology and Health Education, Sathya, Chinnalapatti, 1990.
21. NASPE. (2005). Physical Education for lifelong fitness. The physical Best teacher's guide. IL:Human Kinetics
22. Nieman, D.C.(1986). Fitness and Sports Medicine : Health Related Approach London: Mayfield Publishing Co.
23. Nimbalkar. Sadashiv, Yoga for Health and Peace.- 6th Ed., Yoga Vidya Niketan, Mumbai., 2004.
24. Pate R.R. & Hohn R.C. (1994). Health Fitness Through Physical Education. USA : Human Kinetics.
25. Pandey ,&Gangopadhyay.(1995). Health Education for school children. New Delhi : Friends Publication.
26. Safrit, M. (1990). Introduction to Measurement in Physical Education and Exercise Science. St. Louis,Toronto,Bastan : Times Mirror/Mosby College Publishing.
27. Sharma, O.P. (1998). History of Physical Education. Delhi: Khel Sahitya Kendra.Werner.
28. W.K., Hoeger. (2007). Fitness and Wellness. (8th ed.). Wadsworth, Cengage Learning.
29. जोशी, विजया – व्यायामाचे शरीर क्रीया शास्त्र, अमित ब्रदर्स, नागपूर, १९९५
30. वाखारकर,दि.गो. – शरीर विज्ञान व आरोग्य शास्त्र, क्रीडातंत्र, पुणे, १९९२

PHYSICAL FITNESS EXAMINATION

(for Semester – I)

*The Colleges shall conduct Health Related Physical Fitness examination of the college Youth comprises of the following four Tests (each for 10 Marks) or due to the paucity of time, space as well as large number of students, they may conduct only one test that is Suryanamaskar, instead of the said four tests. Additional information pertaining to the **Body Composition** is also given in the end for providing proper guidance to college youth regarding their problems pertaining to underweight, overweight, obesity, exercise, diet etc.*

Test – I : Bent Knee Sit ups : 10 Marks

Test – II : Push Ups (For Boys), : 10 Marks
: Modified Push Ups (For Girls)

Test – III : 9/12 Minutes Run and Walk : 10 Marks

Test – IV : Sit and Reach : 10 Marks

(The sum of the marks obtained in above tests be converted into the marks out of 10)

OR

Test - Suryanamaskar (Alternative to above tests) : 10 Marks

The descriptions of the above tests are as follows :

TEST- I : BENT KNEE SITUPS (10 Marks)

Objectives : To measure the Muscular Endurance of the body.

Concept : *Muscular Endurance is the ability of muscle or a group of muscles to continue moving a resistance. e.g. Ability to walk for long duration.*

Equipment : Stop watch and mat or dry turf or clean floor, pen, score sheet.

Procedure : The subject is asked to lie on back with



knees bent, feet on the floor with heels not more than 12 inches from the buttocks. Before starting the test the subject is asked to put his/her hand on the back of the neck with fingers clasped and place the elbows squarely on the mat/turf/floor. The subject's feet are held by a companion to ascertain that the feet do not leave the surface and remain touching it. After the signal by tightening the abdominal muscles, the body above the trunk should be raised so as to elbows touches the knees which shall be counted as one complete action (sit up). The subject has to perform this action maximum number of times in one minute/60 seconds.

Scoring : Record the numbers of correctly executed sit ups performed by subject in one minute/60 seconds and marks out of 10 will be given as per ready reckoner enclosed.

Instructions :1) Select dry and clean plain surface
2) Number of students for testing will depend on availability of examiners and place
3) Examiners should sit/stand at left/right side of the performer /student
4) If fingers unclasped or elbows do not touch the knees, sit ups will not be counted.

TEST- II: PUSH UPS (for Boys) (10 Marks)
MODIFIED PUSH UPS (for Girls)

Objectives : To measure the Muscular Strength of the arms.

Concept : *Maximal contraction power of the muscle is known as Muscular Strength. Muscular Strength is the amount of resistance that a muscle or group of muscles can move. e.g. to lift any heavy weight.*

Equipment : Stopwatch, carpet, pen, score sheets.

Procedure : Before start the subject is asked to keep his/her both hands straight from shoulder and palm on the ground, by keeping equal distance to the shoulders. Keep the legs straight and close (dips position) on the ground. At the signal 'start', go down by bending both the elbows (by keeping 90° angle) and by keeping rest of the body parallel to the supporting surface, without touching chest, waist and knees to the ground and should come up to the original position which will be considered as one complete push-ups. Perform this action continuously for maximum number of times in one minute / 60 seconds.

In case of modified Push-ups: In the beginning girls have to keep knees together on the ground, legs should be raised upwards from knees by crossing them, so that while performing the stress will come on both the hands and knees. Remaining procedure will be same as boys. Perform as many push-ups as possible in one minute / 60 seconds.

Scoring : Record the number of push-ups executed in one min and marks out of 10 will be given as per ready reckoner enclosed.

Instruction : 1) Subject should not touch trunk to the ground.
2) If subject do not keep body parallel to ground, push-ups will not be counted.
3) Subject should keep the elbows close to the body.



Modified Push-ups – for Girls



Push-ups – for Boys

TEST- III : 9/12 MINUTES RUN AND WALK (10 Marks)

9 Minutes Run and Walk (for Women Students)

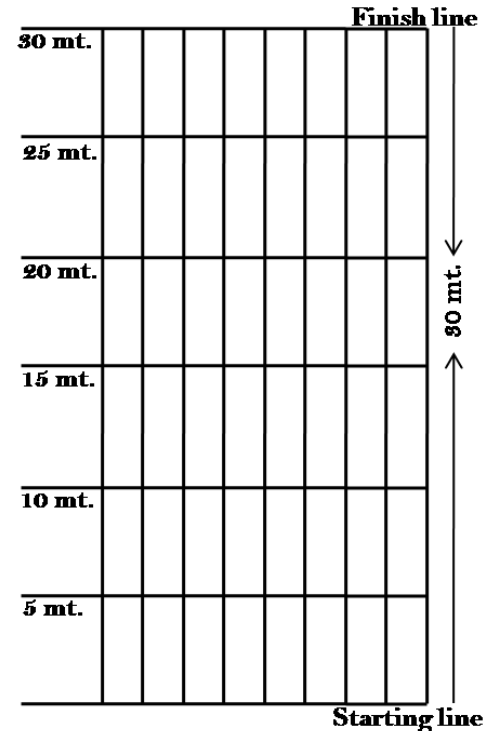
12 Minutes Run and Walk (for Men Students)

Objectives : To measure the Cardiovascular endurance of the body.

Concept : *Cardiovascular Endurance is defined as the ability of the heart and lungs to provide an adequate supply of oxygen to the body over and extended period of time. e.g. Ability to run for long duration.*

Equipment : Stopwatch, whistle/clapper, pen, 30 M. plain ground/ Surface.

Procedure : Mark 5 to 8 lanes of 30 meter in length and 1.22 meter in width with cross marking of 5 meter distance on each lane. Before starting the test the subjects will stand behind the starting line. After the signal of whistle/clapper the student will start to run or walk. At the same time stopwatch must be started. After touching the finish line of 30 mt. he/she will come back and repeat the same, up to 9/12 min. without stopping. The student will be also informed orally about the last one minute to go, as well as to stop at the same point after the time is over (after the whistle).



Scoring : Record the total running/walking distance of the subjects in meters and marks out of 10 will be given as per ready reckoner enclosed.

Instructions : 1) Record carefully the correct number of laps of the students.
2) Instruct student to stop at the same point after the time is over and record the distance as per the marking.

TEST- IV : SIT AND REACH (10 Marks)

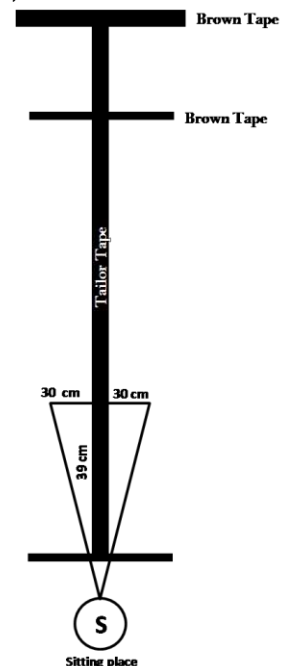
Objectives : To measure the flexibility of the lower back and posterior thigh (Trunk)

Concept : *The range of motion available at a joint or joints is known as Flexibility.*

A person who possesses full range of motion around their joints can perform wide range of physical activities without pain and injuries. Further may be defined as the ability to move muscles and joints through their full range of motion.

Equipment : Tailor tape, brown tape, pen, score sheet.

Procedure : Prepare a plain ground as shown in the diagram. On a plain surface mark 60 cm length horizontal



line. At the centre of this line place the tailor tape a right angle. The marking of 39 cm of the tailor tape should be behind the horizontal line while remaining tailor tape is in front of the line. Mark 30 cm on both the sides of the horizontal line. Before the start subjects are asked to sit straight by spreading both the legs without bending knees and heels touching to 30 cm marking. The arms are extended forward with one hand on top of the other (i.e. Palm of one hand on the top of other hand) Then raise both the hand above the head bring them in front of the body without bending from elbows, along the tailor tape as forward as possible, hold this position.



Scoring : Record the distance in centimeters where the fingers of the hands are rested and marks out of 10 will be given as per ready reckoner enclosed.

Instructions: 1) Subject should not bend their knees while leaning forward.
2) Subjects should do warm up and stretching exercises before test.

TEST: SURYANAMASKAR (10 Marks)

(for testing Health Related Physical Fitness for 10 marks)

Suryanamaskara energizes the entire neuro-glandular and neuro-muscular system of the body. Its regular practice ensures a balanced supply of oxygenated blood and perfect harmony to all the systems of the body, thus invigorating the entire psychosomatic system of human constitution.

The parameters of Health Related Physical Fitness (HRPF) Viz. muscular strength, muscular endurance, cardiovascular endurance and flexibility can be evaluated by using only one test, that is Suryanamaskar. The description of this test is as follows:-

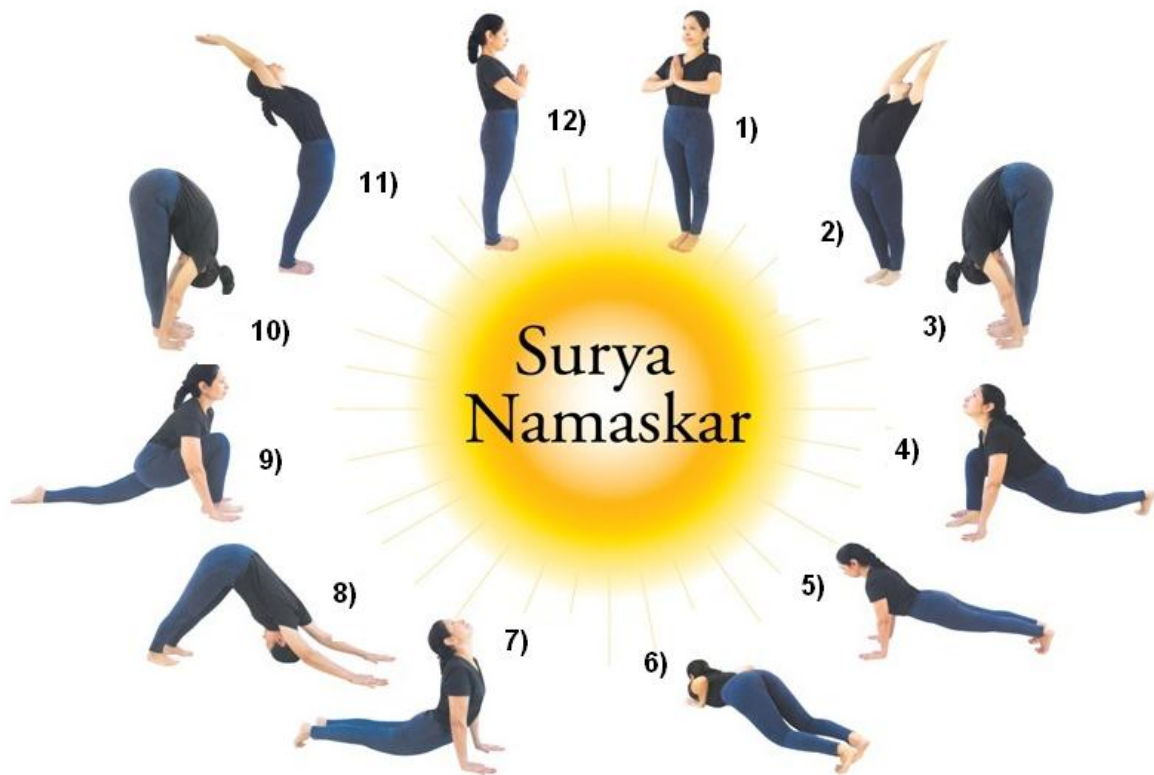
Objective : To measure the HRPF components

Equipment : Plain surface, carpet, stopwatch, pen, score sheet.

Procedure : In this test the subject is asked to perform maximum number of Suryanamaskaras in duration of 05 minutes. At the signal ready the

subject will stand in erect (savdhan) position. After the signal 'start' the subject will perform suryanamaskaras consisting of following 12 postures continuously for 05 minutes.

- Position 1.** Stand with feet together and palms folded in front of chest.
- Position 2.** While inhaling raise arms over head and shoulders with palms touching each other and biceps touching ears. Stretch abdomen as much as possible and lean backwards.
- Position 3.** While exhaling bend forward and place palms at the side of feet. Touch the forehead to the knees.
- Position 4.** While inhaling take one leg back and place other leg in the front with palms firm on the ground. Raise head.
- Position 5.** Start exhaling slowly and bring the leg that was in front next to other one and keep the hips off the floor, with hands on the floor supporting the body.
- Position 6.** Inhaling slowly lower the knees, chest and forehead with palms firmly on the ground next to your chest and elbows. Complete the exhaling.
- Position 7.** While inhaling lower your west and raise your upper body. Look upward and keep your arms straight.
- Position 8.** Start exhaling slowly and raise hips and bring head to the floor with eyes on the toe – like an inverted 'V'.
- Position 9.** This position is same as position number 4.
- Position 10.** The position is same as position number 3.
- Position 11.** The position is same as position number 2.
- Position 12.** The position is same as position number 1.
- Scoring :** Number of suryanamaskaras performed in 05 minutes will be considered as a score for this test and marks out of 10 will be given as per ready reckoner enclosed.



IMPORTANT NOTE (Additional Information about HRPF)

It is pertaining to note that in addition to the parameters of Health Related Physical Fitness (HRPF) tested in the above tests 'Body Composition' is also one of the important component of HRPF. Hence, the colleges should provide proper guidance to youth pertaining to the proportion of their Body Fat in relation to their Weight and Height (BMI). Body Composition is the percentage of body fat and lean mass in body. The guidelines can be given on body composition and risk factors associated with obesity related diseases by calculating the BMI (Body Mass Index) on the basis of the Height & Weight of the college youth as follows:-

- **Formula for calculation of BMI:**

$$\text{BMI} = \frac{\text{Body Weight (in Kgs)}}{\text{Height (in Meter)}^2}$$

Example- If the Height of a Student is 168 cms & weight is 71 Kgs. Find his BMI.

$$\text{BMI} = \frac{71}{1.68^2}$$

$$\text{BMI} = \frac{71}{2.8224}$$

BMI = 25.16 (As per the Table shown below the learner falls under Overweight category)

- **Classification of Disease Risk Based on Body Mass Index (BMI)***

	BMI (kg/m ⁻²)
Underweight	<18.5
Normal	18.5 – 24.9
Overweight	25.0 – 29.9
Obesity Class**	
I	30.0 – 34.9
II	35.0 – 39.9
III	≥ 40

* Modified from Expert Panel, Executive summary of the clinical guidelines on the identification, evaluation and treatment of overweight and obesity in adults. Arch Intern Med 1998; 158: 1855-1867.

*American College of Sports Medicine (2013). ACSM's Resource Manual for Guidelines for Exercise Testing & Prescription, Ninth Edition PA: Williams & Wilkins.

** Disease risk increases for Type 2 diabetes, hypertension and cardiovascular disease with obesity class.

**Ready Reckoner for Physical Fitness Examination
(For Men)**

Marks	Push-Ups (No. in 1min)	Sit-Ups (No. in 1min)	12min Run/Walk (In meter)	Sit and Reach (In cm.)	Suryanamaskar (No. in 5min)
10	50 & above	45 & above	2200 & above	50 & above	50 & above
09	45-49	40-44	2100-2199	45-49	45-49
08	40-44	35-39	2000-2099	40-44	40-44
07	35-39	30-34	1900-1999	35-39	35-39
06	30-34	25-29	1800-1899	30-34	30-34
05	25-29	20-24	1700-1799	25-29	25-29
04	20-24	15-19	1600-1699	20-24	20-24
03	15-19	10-14	1500-1599	15-19	15-19
02	10-14	05-09	1400-1499	10-14	10-14
01	below 09	below 04	below 1399	below 09	below 09

**Ready Reckoner for Physical Fitness Examination
(For Women)**

Marks	Modified Push-Ups (No. in 1min)	Sit-Ups (No. in 1min)	09min Run/Walk (In meter)	Sit and Reach (In cm.)	Suryanamaskar (No. in 5min)
10	40 & above	29 & above	1500 & above	40 & above	36 & above
09	35-39	25-28	1400-1499	35-39	32-35
08	30-34	22-24	1300-1399	30-34	28-31
07	25-29	19-21	1200-1299	25-29	24-27
06	20-24	16-18	1100-1199	20-24	20-23
05	15-19	13-15	1000-1099	15-19	16-19
04	10-14	10-12	900-999	10-14	12-15
03	05-09	07-09	800-899	05-09	08-11
02	01-04	04-06	700-799	01-04	04-07
01	below 01	below 03	below 699	below 01	below 03