



**SPORT SCIENCE & MANAGEMENT
SS9001 CONDITIONING FOR PHYSICAL FITNESS**

Pre-requisites	None required
No of AUs	3
Contact Hours	Total hours: 39

Course Aims

This course is designed to help you understand the theoretical and practical considerations regarding the planning and development of health and physical fitness, so that you are able to plan and organise a personal health and fitness programme.

Intended Learning Outcomes (ILO)

By the end of this course, you (as a student) would be able to:

1. Define fitness and explain its components
2. Explain the principles of fitness training and apply them to individual health and fitness programme,
3. Describe the different methods of training and the principles behind these methods,
4. Design and plan an individual fitness and healthy lifestyle programme

Course Content

- Health related and performance (skill) related components of physical fitness:
 - Cardiovascular fitness
 - Muscular strength
 - Muscular power
 - Muscular endurance
 - Flexibility
 - Body composition
 - Speed
 - Agility
 - Coordination
 - Balance
 - Reaction time
- Training principles
- Diet and Nutrition

Assessment (includes both continuous and summative assessment)

Component	Course LO Tested	Related Programme LO or Graduate Attributes	Weighting	Team/ Individual	Assessment Rubrics
1. Written Test	1 to 4	A1, A2, B1, B2, B3	30%	Individual	NA
2. Practical Assignment 1	1 to 4	A1, A2, B3	30%	Individual	Appendix 1
3. Practical Assignment 2	1 to 4	A1, A2, A3, B1, B2, B3, B4, B5, C1, C2, D1, D2, E1, E2	30%	Team	Appendix 2
4. Class Participation	1 to 4	A1, A2, A3, B1, B2, B3, B4, B5, C1, C2, D1, D2, E1, E2	10%	Individual	Appendix 3
Total			100%		

Graduates of the SSM programme should show:

Competence

A1: {Understanding}

process and interpret information, evidence and methodologies related to sport science or sport management

A2: {Self-discipline}

independently apply themselves to solve relevant problems

A3: {Modern Tool Usage}

use technology to communicate and provide feedback on sports activities, improve sports performance, monitor and increase physical activity, provide exercise prescription, solve problems for disadvantaged athletes/sportspeople, and commercialize and innovate sports products, events and services

Creativity

B1: {Critical Thinking}

critically assess the applicability of sport science and sport management tools toward problems and in the workplace

B2: {Analytical Thinking}

critically analyse data from a multitude of sources

B3: {Interdisciplinary Thinking}	connect the subfields of sport science and sport management to tackle problems
B4: {Innovation}	be able to develop new applications or improve existing techniques
B5: {Entrepreneurship}	develop new ideas and plans for sport science, businesses and events
Communication	
C1: {Effective Communication}	present findings or ideas from sport science and sport management research logically and coherently at the appropriate level for the intended audience and in all forms of communication
C2: {Teamwork}	work in teams on projects that require sport science or sport management application, and communicate results via demonstration, verbally and in written form
Civic-Mindedness	
D1: {Professionalism}	act in a manner that respects the profession and meets the expectations of the sport science and sport management industry
D2: {Inclusiveness}	promote sport and physical activity in all individuals to bring people together and improve physical, social and psychological outcomes
Character	
E1: {Ethical behaviour}	act with integrity and in a socially responsible and ethical manner in line with societal and legal expectations in relation to collecting and analysing data of people and protecting personal data with appropriate computer security
E2: {Sportspersonship}	demonstrate appropriate safety, concern and good conduct in sport situations towards other individuals involved in the activity
Formative Feedback	
<p>During practical sessions, you will be provided the opportunities for hands-on activities. The instructor will provide immediate feedback on the techniques or performances, whenever possible. You could also refer to the performance scoring chart to gauge your level of performance and work on improvement. In addition, you are encouraged to share their thoughts on the health and fitness topics discussed. The instructor will also provide immediate feedback on the information shared by you. Performances and common mistakes of past students would be discussed to enhance students learning. Throughout the course, you are encouraged to seek feedback regarding their learning</p>	

Learning and Teaching Approach

Approach	How does this approach support students in achieving the learning outcomes?
Learner-centred	The contents of the course is delivered such that they are meaningful to you. Hence, the main activities will be based on building the capacity of your planning and designing quality individual health and fitness programmes.
Collaborative learning	Throughout the course, you are provided opportunities to perform physical activities related to health and fitness individually, as well as in small groups. The group assignment is another platform for you to work together on your team project. During the process, you also develop your critical thinking skills when responding to your classmates' suggestions and contribution. As you interact, you would also develop your social skills for academic discussion.
Inquiry based learning	The course is rich in content. However, the contents are undergoing evolvement consistently. Hence, it is key to tap on the inquiry-based learning approach for you to construct your knowledge and making them applicable in future when you attempt to stay fit and healthy as you join the work force. The assignment also adopts the inquiry based learning approach where you research relevant resources and tap on your critical thinking skills to put together a health & fitness handbook
Instructor Guidance	Throughout the course, the main role of the instructor is to facilitate your learning and to provide guidance when you encounter any challenges.

Reading and References

- American College of Sports Medicine. (2009). ACSM's Guidelines for Exercise Testing and Prescription (8th ed.). Lippincott Williams & Wilkins.
- American College of Sports Medicine. (2009). ACSM's resource manual for Guidelines for Exercise Testing and Prescription (6th ed.). Wolters Kluwer Health/Lippincott Williams & Wilkins.
- American College of Sports Medicine. (2010). ACSM's health-related physical fitness assessment manual (3rd ed.). Wolters Kluwer Health/Lippincott Williams & Wilkins Health.
- Baechle, T. R., Earle, R. W., & National Strength & Conditioning Association (U.S.). (2008). Essentials of strength training and conditioning (3rd ed.). Human Kinetics (contact HK representative; details will be provided).
- Heyward, V. H. (2010). Advanced fitness assessment and exercise prescription (6th ed.). Human Kinetics.

- Quek S. C. H., Kunalan C., Ch'ng A. T. H., Mohammed Azhar (2008). Physical Education For Upper Secondary. Pearson.
- Maud, P. J., & Foster, C. (2006). Physiological assessment of human fitness (2nd ed.). Champaign, IL: Human Kinetics.
- Nieman, D. C. (2011). Exercise testing and prescription: a health-related approach (7th ed.). Boston: McGraw-Hill.

Course Policies and Student Responsibilities

(1) General

You are expected to complete all assigned pre-class readings and activities, attend all classes – lecture and laboratory - punctually and submit the scheduled assignment by the due dates. You are expected to take responsibility to follow up with course notes, assignments and course related announcements for sessions missed. You are expected to participate in all discussions and class activities unless there is a valid medical reason not to do so.

(2) Absenteeism

Absence from class without a valid reason will affect your overall course grade. Valid reasons include falling sick supported by a medical certificate and participation in NTU's approved activities supported by an excuse letter from the relevant bodies.

If you miss a lecture, you must inform the course instructor via email prior to the start of the class.

(3) Absence Due to Medical or Other Reasons

If you are sick and not able to complete a test or submit an assignment, you have to submit the original Medical Certificate (or another relevant document) to the Sport Science & Management (or Home School) administration to obtain official leave. Without this, the missed assessment component will not be counted towards the final grade. There are no make-ups allowed.

Academic Integrity

Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honour Code, a set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU's shared values.

As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, collusion and cheating. If you are uncertain of the definitions of any of these terms, you should go to the [academic integrity website](#) for more information. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

Collaboration is encouraged for your work in the class and laboratories because peer-to-peer learning helps you understand the subject better and working in a team trains you to better communicate with others. Working together and exchanging ideas and experiences will help improve the quality of your assessed presentation. It is important to credit others for their contribution to your work which promotes ethical practices and academic integrity.

Course Instructors

Instructor	Office Location	Phone	Email

Planned Weekly Schedule

Week	Topic	Course LO	Activities
1	Introduction and General Conditioning	1, 2, 3 and 4	Lecture: Understanding Health, Wellness and Fitness Practical: Planning a health and wellness programme - Issues in health, wellness and fitness plan
2	Conditioning and Exercise Intensity	1, 2, 3 and 4	Lecture: Exercise Intensity and Weight Management Practical: Walk, Jog, Stairs Climbing and High Intensity Training for weight management
3	Conditioning and Assessment of Fitness	1, 2, 3 and 4	Lecture: Components of Fitness, Principles of Training Practical: NAPFA tests items and their relation to components of fitness
4	Flexibility and Aerobic Training	1, 2, 3 and 4	Lecture: Static, Dynamic and PNF Stretch Practical: Static and PNF Stretches

5	Strength / Circuit Training	1, 2, 3 and 4	Lecture: Assessing Strength, The importance of Strength and Flexibility in injury prevention and management Practical: Strength Test
6	Endurance Training – Interval, Farklek	1, 2, 3 and 4	Lecture: Aerobic and Anaerobic Training – Methods and Purposes; pros and cons of different methods Practical: Aerobic Run, Interval Training, Farklek
7	Endurance – Assessment of Endurance	1, 2, 3 and 4	Lecture: Assessment of cardiovascular fitness Practical: Beep Test
8	Recess		
9	Speed, Agility and Power	1, 2, 3 and 4	Lecture: Speed, Agility and Balance Practical: Assessing and Training of Speed, Agility and Balance
10	Body Composition, Nutrition and Planning	1, 2 and 4	Lecture: Body Composition and the importance of Nutrition and Exercise Practical: Body Composition Measures (Hip-Waist Ratio, Skin-fold, Height-Weight Ratio and BMI)

11	Practical Test / Presentation		Practical: Assessment
12	Written Test / Presentation		Theory Assessment
13	On-site Fitness Programme	2, 3 and 4	Exploring a popular natural exercise setting in Singapore

Appendix 1: Grading for Practical Assessment 1

National Physical Fitness Award/NAPFA Challenge Standards for Males

Age Group	Performance Grade	Points	No. of Sit-ups in 1 min	Standing Broad Jump Distance	Sit & Reach Distance	No. of Pull-ups	4 x 10m Shuttle Run Time	2.4km Run-Walk time (min : sec)
20-24 years of age	A	5	>39	>242cm	>50cm	>10	<10.4 sec	<10:21
	B	4	37-39	234-242	44-50	9-10	10.4-10.5	10:21-11:00
	C	3	34-36	225-233	37-43	7-8	10.6-10.7	11:01-11:40
	D	2	31-33	216-224	30-36	5-6	10.8-10.9	11:41-12:20
	E	1	28-30	207-215	23-29	3-4	11.0-11.1	12:21-13:00

25-34 years of age	A	5	>36	>233cm	>47cm	>8	<10.6 sec	<11:01
	B	4	34-36	225-233	41-47	7-8	10.6-10.7	11:01-11:40
	C	3	31-33	216-224	34-40	5-6	10.8-10.9	11:41-12:20
	D	2	28-30	207-215	27-33	3-4	11.0-11.1	12:21-13:00
	E	1	25-27	198-206	20-26	1-2	11.2-11.3	13:01-13:40

National Physical Fitness Award/NAPFA Challenge Standards for Females

19 years of age	A	5	>30	>195cm	>48cm	>21	<11.3 sec	<14:31
	B	4	29-30	185-195	43-48	15-21	11.3-11.5	14:31-15:00
	C	3	27-28	174-184	36-42	8-14	11.6-11.8	15:01-15:40
	D	2	24-26	165-173	29-35	4-7	11.9-12.1	15:41-16:30
	E	1	21-23	156-164	22-28	2-3	12.2-12.4	16:31-17:15

20-24 years of age	A	5	>28	>197cm	>47cm	>22	<11.6 sec	<15:01
	B	4	27-28	186-197	42-47	16-22	11.6-11.8	15:01-15:30
	C	3	25-26	174-185	34-41	9-15	11.9-12.1	15:31-16:00
	D	2	23-24	162-173	27-33	5-8	12.2-12.4	16:01-16:30
	E	1	21-22	150-161	20-26	2-4	12.5-12.7	16:31-17:00

Appendix 2: Assessment Criteria for Practical Assignment 2 (30%)

Dimensions	5 - 6 marks	3 - 4 marks	2 marks	1 mark
Knowledge synthesis and articulation	<ul style="list-style-type: none"> ▪ Consistently translated the literature into well-articulated tasks and thinking processes. ▪ Presented knowledge that was complete. 	<ul style="list-style-type: none"> ▪ Somewhat translated the literature into tasks. ▪ A need to address some minor gaps in knowledge. 	<ul style="list-style-type: none"> ▪ Sporadically translated the literature into tasks. ▪ A need to address obvious gaps in knowledge. 	<ul style="list-style-type: none"> ▪ Has not translated the literature into tasks. ▪ A need to address a significant number of gaps in knowledge.
Relevance, clarity & accuracy	<ul style="list-style-type: none"> • Scope and thrust of the project was very clearly represented. • The project content was very organised, thoroughly researched, and ideas are well-developed with evidence. 	<ul style="list-style-type: none"> • Scope and thrust of the project was well represented. • The project content was well-organised, ideas are relevant and substantiated with evidence. 	<ul style="list-style-type: none"> • Scope and thrust of the project was adequately represented. • The project content was adequately organised but ideas not developed, evidence may be misinterpreted or distrust. 	<ul style="list-style-type: none"> • Scope and thrust of the project was poorly represented. • The project content was poorly organised and does not adhere to academic standard.
Breadth & depth	<ul style="list-style-type: none"> • The breadth and depth of the project content was very appropriate and very well defined, including the critical / core content 	<ul style="list-style-type: none"> • The breadth and depth of the project content was appropriate and fairly well defined, including the critical / core content. 	<ul style="list-style-type: none"> • The breadth and depth of project content was somewhat too narrow/shallow, not so clearly defined. • The critical/ core content was implied / unclear. 	<ul style="list-style-type: none"> • The breadth and depth of the project content was unrealistic/vague. • The critical / core content was ignored / missing.
Pride in work / Attention to detail	<ul style="list-style-type: none"> ▪ Work submitted was complete and well-substantiated and consistently of a high quality. 	<ul style="list-style-type: none"> ▪ Work submitted was fairly well-substantiated. ▪ Some minor gaps in the work where further effort 	<ul style="list-style-type: none"> ▪ Work submitted was incomplete and/or unsubstantiated. ▪ Some major gaps in the work where further effort and/or more 	<ul style="list-style-type: none"> ▪ Significant number of major gaps observed. ▪ Work submitted is of poor quality.

		and/or more complete thinking was needed.	complete thinking was needed.	
Design	▪ Well-designed handbook	▪ Fairly well designed handbook	▪ Average designed	▪ Poorly designed handbook

Each team member's score may vary according to observations, the team feedback, and individual's contribution to the team's final product and one another's learning.

Appendix 3: Assessment Criteria for Class Participation

The assessable components include the following:

Assessment Rubrics

CLASS PARTICIPATION

	A+, A, A-	B+, B	B-, C+, C	D+, D	F
Class Participation (10)	Participates actively in class, demonstrating a deep understanding of the content.	Participates actively in class, demonstrating a good understanding of the content.	There is some participation during class, demonstrating an adequate understanding of the content.	There is little participation in class.	There is an absence of any participation in class.