

Universitas Negeri Surabaya Faculty of Sports and Health Sciences S1 Sports Coaching Education Study Program

Document Code

SEMESTER LEARNING PLAN

Courses		CODE			Cours	se Far	nily			Crea	lit We	ight	SEM	ESTER	Con Date	npilation e
Exercise Physiology		8520202065	65 Compulsory Study Program Subjects				T=2	P=0	ECTS=3.1	8	2	Janı 2022	uary 1, 2			
AUTHORIZAT	ΓΙΟΝ	SP Develop	SP Developer			Co	ourse	Clus	ster Co	oordinator	Stud	y Progra	m Co	ordinato		
							Prof. Dr. Nining Widyah Kusnanik, M.Appl.Sc			Dr.	Dr. Or. Muhammad, S.Pd., M.Pd.					
Learning model	Case Studies	I						1								
Program	PLO study prog	gram that is charg	ged to	o the co	urse											
Learning Outcomes	Program Object	tives (PO)														
(PLO)	PO - 1	Able to be respons	ible fo	or the app	licatior	n of sp	orts p	hysic	ology	to in	dividua	al and group	perform	ance		
	PO - 2	Able to master the	conce	epts, theo	ry and	pract	ice of	sport	s phy	siolo	gy in t	he field of c	oaching	and spor	ts edu	cation
	PO - 3	Able to use basic development or im					appli	catio	n of l	ogica	l, critio	cal, system	atic and i	nnovativ	e think	ing in the
	PO - 4	Able to train techni	cally,	physically	/, tactio	cally a	ind me	entally	y in tł	ne fie	ld of s	ports by ap	olying ba	sic physi	ologica	al thinkin
	PLO-PO Matrix															
		P.O PO-1 PO-2 PO-3 PO-4		2 3	4	5	6	7	8	We	10				15	16
Short Course Description	circulation, respiration, respi	nines exercise phy ation, digestion, nu esentations, discus	trition,	body ter	mperat	ture, e	energy	/ syst	tems	and	metab	polism in re	ation to	exercise	. This	lecture i
References	Main : 1. Katch VL, McArdle WD, Katch FI, 2011: Essentials of Exercise Physiology 4th Edition, Lippincott Williams & Wilkins; 2. Powers SK, Howley ET, 2009: Exercise Physiology, McGraw Hill; 3. Nining WK, Hartono S, Nasution J, 2011: Dasar-Dasar Fisiologi Olahraga, Unesa Unipress 4. Nining WK, dkk, 2015: Fisiologi olahraga, Unesa Unipress															
	Supporters:															
	1. Modul Pe 2. Youtube	mbelajaran Dosen														

Support lecturer	Dr. Or. Muhamma Dr. Kunjung Asha Bayu Agung Prar	adi, S.Pd., M.Fis., Al nono, S.Pd., M.Kes. Lusuma, S.Pd., M.Ke	FO.				
Week-	Final abilities of each learning stage	Ev	valuation	Learr Studen	lp Learning, ning methods, it Assignments, timated time]	Learning materials [References	Assessment Weight (%)
	(Sub-PO)	Indicator	Criteria & Form	Offline(offline)	Online (<i>online</i>)	1	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Understand and master cells including shape, size, function and components of cells, cell metabolism, such as anabolism and catabolism, and cell division	 Students are able to explain and identify the shape and function of cells Students are able to explain the mechanism of metabolism in cells and the process of cell division 	Criteria: 1.Test 2.Live question and answer test Form of Assessment : Participatory Activities, Tests	Lectures, Discussions and Questions and Answers 3 X 50		Material: Cell form and function References: Katch VL, McArdle WD, Katch FI, 2011: Essentials of Exercise Physiology 4th Edition, Lippincott Williams & Wilkins;	5%
2	Understand and master cells including shape, size, function and components of cells, cell metabolism, such as anabolism and catabolism, and cell division	 Students are able to explain and identify the shape and function of cells Students are able to explain the mechanism of metabolism in cells and the process of cell division 	Criteria: 1.Test 2.Live question and answer test Form of Assessment : Participatory Activities, Tests	Lectures, Discussions and Questions and Answers 3 X 50		Material: Cell form and function References: Katch VL, McArdle WD, Katch FI, 2011: Essentials of Exercise Physiology 4th Edition, Lippincott Williams & Wilkins;	5%

				1		
3	Analyze the muscular system, structure and function of skeletal muscles such as myofibrils, filaments, sliding filaments, types of muscle fibers and	1.Students are able to give at least 3 examples of sports problems related to	Criteria: Analytical rubric Form of Assessment : Participatory Activities, Practice/Performance	Lectures, Discussions and Questions and Answers. 3 X 50	Material: Muscle performa in sports activities Referem <i>Powers</i> S <i>Howley</i> E	nce ces: SK,
	filaments, types of muscle fibers and muscle contraction				Howley E 2009: Exercise Physiolog McGraw Material: Anatomy function of muscles Reference Nining W Hartono - Nasution 2011: Ba of Sports Physiolog Unesa Unipress Material: Cases of muscle a a in physic activities Reference	ET, gy, Hill; and of Ses: K, S, J, sics gy, tivity al
		and then design patterns to solve these problems			Lecturer Learning Module Material: problem failure in cultivatio early childhood athletes is related muscle performa Reference YouTube	the of the n of d which to nce. ce:

4	Analyze the muscular system, structure and function of skeletal muscles such as myofibrils, filaments, types of muscle fibers and muscle contraction	 Students are able to give at least 3 examples of sports problems related to muscle performance Students are able to identify the sources of muscle- related problems Identifying muscle problems Identifying muscle Totalentifying muscle Totalentifying Muscle Totalentifying Muscle Totalentifying Students are able to explain the impact of muscle Totalents are able to explain the impact of muscle Totalents and then design patterns to solve these problems 	Criteria: Analytical rubric Form of Assessment : Participatory Activities, Practice/Performance	Lectures, Discussions and Questions and Answers. 3 X 50	Material: Muscle performance in sports activities References: Powers SK, Howley ET, 2009: Exercise Physiology, McGraw Hill; Material: Anatomy and function of muscles References: Nining WK, Hartono S, Nasution J, 2011: Basics of Sports Physiology, Unesa Unipress Material: Cases of muscle activity in physical activities References: Lecturer Learning Module Material: the problem of failure in the cultivation of early childhood athletes which is related to muscle. Reference:	5%
5	Mastering circulatory systems such as blood, heart and blood vessels	 Able to explain the anatomy of the heart, lungs and blood vessels sequentially and correctly Able to identify the differences in these organs in normal people and athletes Able to explain the relationship between changes in these organs due to physical activity 	Criteria: It is considered correct if it can explain 80% correctly Form of Assessment : Participatory Activities	Lectures, Discussions, Analysis and Questions and Answers 3 X 50	YouTube Material: anatomy of the heart Bibliography: Powers SK, Howley ET, 2009: Exercise Physiology, McGraw Hill; Material: physiological activities of the heart. Reference: Nining WK, Hartono S, Nasution J, 2011: Basics of Sports Physiology, Unesa Unipress	5%

6	Understand and master the respiratory system such as expiration, inspiration, pulmonary diffusion, exchange of oxygen and carbon dioxide, gas exchange in muscles, and regulation of lung ventilation	 Be able to explain the meaning of single blood circulation Able to explain double blood circulation Be able to explain the process of pulmonary respiration 	Criteria: Correct if you can explain 80% correctly Form of Assessment : Participatory Activities	Lectures, Discussions, Analysis and Questions and Answers 3 X 50	Material: Heart and lung performance References: Powers SK, Howley ET, 2009: Exercise Physiology, McGraw Hill;	5%
7	Understand and master the structure and function of the digestive system. Mastering the regulator of metabolism, nutrition and body temperature	 Students are able to give at least 3 examples of sports problems related to VO2max d Students are able to identify the sources of problems related to this matter Identify the problem based on the source and the impact it will have on society Students are able to explain the impact of the problem and then design a pattern to solve the problem 	Criteria: It is considered correct if it is able to explain 80% correctly Form of Assessment : Participatory Activities, Practice/Performance	Lectures, Discussions, Analysis and Questions and Answers 3 X 50	Material: VO2max in athletes References: Powers SK, Howley ET, 2009: Exercise Physiology, McGraw Hill; Material: Analysis of Vo2max achievement in athletes. Reference: Lecturer Learning Module Material: understanding athlete's Vo2max Reference: Youtube	5%
8	Understand and master the structure and function of the digestive system. Mastering the regulator of metabolism, nutrition and body temperature	Demonstrate an intelligent and honest attitude in linking the digestive system. Demonstrate a tough and caring attitude in simulating the process of the digestive system. Demonstrate an honest and tough attitude in linking the processes that regulate metabolism, nutrition and body temperature. Demonstrate and cooperation	Criteria: It is considered correct if it is able to explain 80% correctly Form of Assessment : Participatory Activities	Lectures, Discussions, Analysis and Questions and Answers 3 X 50	Material: metabolism References: Nining WK, Hartono S, Nasution J, 2011: Basics of Sports Physiology, Unesa Unipress	15%

9	UTS	 Students are able to give at least 3 examples of sports problems related to endurance Students are able to identify the sources of problems related to this matter Identify the problem based on the source and the impact it will have on society Students are able to explain the impact of the problem and then design a pattern to solve the problem 	Criteria: UTS Form of Assessment : Participatory Activities, Tests	presentations, lectures and discussions 3 X 50	Material: Components of athlete's endurance Reference: <i>Nining WK, et al, 2015:</i> <i>Sports</i> <i>physiology,</i> <i>Unesa</i> <i>Unipress</i> Material: management problems of endurance components in athletes. Reference: <i>Lecturer</i> <i>Learning</i> <i>Module</i>	5%
10	Master and understand energy systems such as energy sources, basic energy systems (phosphagen/ATP PC system, glycolysis system, and oxidative system). Understand and master the Kreb's cycle and the electron transport chain	 Be able to explain the structure of the digestive organs explain the concept of energy metabolism explain the body's nutritional needs explain the effects of energy metabolism mechanisms 	Criteria: It is considered correct if the answer is 80% correct Form of Assessment : Participatory Activities, Tests	Lectures, Analysis Discussions, and Questions and Answers 3 X 50	Material: concept of energy metabolism References: Katch VL, McArdle WD, Katch FI, 2011: Essentials of Exercise Physiology 4th Edition, Lippincott Williams & Wilkins; Material: structure of digestive organs References: Nining WK, Hartono S, Nasution J, 2011: Basics of Sports Physiology, Unesa Unipress Material: nutritional needs of the body References: Katch VL, McArdle WD, Katch FI, 2011: Essentials of Exercise Physiology 4th Edition, Lippincott Williams & Wilkins;	5%

			1		1		
11	Master and understand hormonal control in the body. Understand the chemical classification of hormones, hormone action, endocrine glands and hormones	 Students are able to give at least 3 examples of sports problems related to energy sources Students are able to identify the sources of problems related to this matter Identify the problem based on the source and the impact it will have on society Students are able to explain the impact of the problem and then design a pattern to solve the problem 	Criteria: It is considered correct if the answer is 80% correct Form of Assessment : Participatory Activities	Lectures, Discussions and Questions and Answers 3 X 50		Material: examples of sports problems related to energy sources. Reference: <i>Lecturer</i> <i>Learning</i> <i>Module</i>	5%
12	Master and understand hormonal control in the body. Understand the chemical classification of hormones, hormone action, endocrine glands and hormones	 Students are able to give at least 3 examples of sports problems related to energy sources Students are able to identify the sources of problems related to this matter Identify the problem based on the source and the impact it will have on society Students are able to explain the impact of the problem and then design a pattern to solve the problem 	Criteria: It is considered correct if the answer is 80% correct Form of Assessment : Participatory Activities, Tests	Lectures, Discussions and Questions and Answers 3 X 50		Material: examples of sports problems related to energy sources. Reference: Lecturer Learning Module	6%

13 Understand and manufacture understand ensity: weight and develope Understand ensity: weight and develope undevelope undevelope understand understand ensity: weight			_	- L - L			
 Lingh and frägue unsersolver oppolytigener unsersolver oppolytigener unsersolver unsersolver oppolytigener unsersolver oppolytigener unse	13						5%
 Understand under dependent at brings dependent at brings depen		supply and fatique					
14 Understand and material advantage and characteristic and advantage and advantage ad		Understand energy	•				
101 Understand and master metabolism overcise Mester and unwinnen anaerobic capacity and unwinnen anaerobic capacity anaerobic capacity and unwinnen anaerobic capacity and							
14 Understand and water metablication and Understand and water of the convertee of energy water of energy water							
14 Understand and company and company supply and fargue benchmark and company an			, ,	Participatory Activities			
and understand maximum aebote anserrohic capacity anserrohic capacity and anserrohic and anserrohic capacity anserr		during sub-maximal				2011:	
14 Urderstand and mexamum admembic capatry amembic capatry amemb		exercise Master				Essentials of	
14 Understand and animotic capacity an addroxic capacity and addroxic capacity and truck in analyzing the process of energy expanditure during an instignent an instigne							
14 Understand and masker metablism during sub- masker metablism and script during sub- masker metablism during sub-masker and toxing additioned and function of functioned during sub- masker metablism during sub-masker and toxing additioned during sub- masker metablism during sub-masker and toxing additioned during sub- masker metablism during sub- masker metablism during sub-masker and toxing additioned							
14 Understand and maximum analyzing the cocorrespondence organization of moments and fough attitude in analyzing the cocorrespondence organization and fough attitude in analyzing the process of sports analyzing the process of sports analyzing the process of sports of sports analyzing the process of sports of sports analyzing the process of sports of sports analyzing the process of sports of sports and comp attitude in analyzing the process of sports of sports of sports analyzing the process of sports of sports and comp attitude in analyzing the process of sports of sports of sports of sports and comp attitude in analyzing the process of sports of sports of sports and comp attitude in maximal overcise Demonstrate an intelligent and comp attitude in the sports of sports of sports of sports of sports of sports of sports and comp attitude in analyzing the process of sports of s		anaerobic capacity	•				
14 Understand and master energy of characteristic an instillation of maximal an horest and touch of characteristic and service and touch analyzing the process of an instillation during sub- maximal exercise metabolism during sub- maximal anserbible capacity and master energy resultation an instillation an instillation and instillatin and instillation and instillation and ins							
14 Understand and maximum anobic analyzing the cocurrence of energy expenditure and tough attitude in analyzing the process of commons. Criteria: Test Lectures, and commons. Material: chassification of tommons. 14 Understand and maximum and currence of energy expenditure tompones and currence of analyzing the process of analyzing the process of and currence the process of analyzing the process of analyzing the process of analyzing the process of and currence the process of and currence the process of analyzing the process of analyzing the process of and currence the process of and function of the analyzing the process of the pr			0				
14 Understand and maximal acarciac box of hermones, hermones			•			vviikii is,	
14 Understand and maker energy expenditure during rest and exercise Demonstrate ant honest attude in analyzing the process of metabolism during sub- maximal exercise Demonstrate ani intelligent and exercise Demonstrate ani intelligent and exercise Demonstrate and anaerobic 2.Able to relate the chemical classification of bortiones hormones action, endods and poticipatory Activities intervous system Criteria: Criteria: Test Decession anity pression anity						Matorial	
14 Understand and mapping attruction classification of mercange and tough attructe in analyzing the process of multified in analyzing the process of multified in analyzing the process of multified in analyzing the process of multified in analyzing activation exercise Demonstrate and nongh the process of multified in analyzing activation exercise Demonstrate and nongh the process of multified in analyzing activation pendulus anaerobic 2.able to relate the chemical anaerobic 2.able to mercise and canging activation pendulus anaerobic 2.able to relate the chemical anaerobic anaerobi							
14 Understand and master entering understand and maximum anaerobic capacity of normones, and cough attitude in anhonest and tough attitude in anhonest an tough attitude in before and conserve and conserve and conserve and conserve and conserve and function attitude in before and annest an tough attitude in anhonest an tough attitude in anhonest an tough attitude in anhonest any attitude any attitude an							
14 Understand and maker energing Demonstrate and study attitude in analyzing the process of metabolism during sub- maximal analyzing attitude in analyzing the process of metabolism during sub- maximal anaerobic 2.able to relate the chemical classification of maker energy expenditure during attitude in anaerobic 2.able to relate the chemical classification of maticipatory Activities Lectures, Analysis Constraints anaerobic 2.able to relate the chemical classification of maticipatory Activities Material: between the nervous system and canner classification of metabolism during atticipatory Activities 5% 14 Understand and maker energy regist and exercise between the anterobic capacity system and exercise between the nervous system autonomic nervous system 1. able to resplain the structure of nervous system Criteria: Test the system and the autonomic nervous system Lectures, Analysis between the nervous system and the classification of classification system System and classification system System and classification system System and classification system System and classification system System and classification system System and classification system							
14 Understand and maximum aeobic and busin antibude in analyzing the process of metabolism during sub- maximal exercise Demonstrate an intelligent and carring the process of metabolism during sub- maximal exercise Demonstrate an intelligent and carring thinking attructe in thinking attructe in the relationship between the nervous system and function in the autonomic nervous system and the in autonomic nervous system and the autonomic nervous system and the in autonomic nervous system and the autonomic nervous system and the in autonomic nervous system and the in autonomic system and the in autonomic system in autonomic in autonomic in in autonomic in autonomic in autonomic in autonomic in autonomic in autonomic in autonomic in autonomic in autonomic in autonomic in autonomic in au						,	
 Inderstand and maximal exercise Demonstrate an honest and tough attitude in analyzing the process of metabolism during submaximal exercise Demonstrate an intelligent and caring attitude in linking acerobic capacity and maximal exercise Demonstrate an intelligent and caring attitude in linking acerobic capacity and maximal exercise Demonstrate and intelligent and caring attitude in linking acerobic capacity and maximal exercise Demonstrate and intelligent and caring attitude in linking acerobic capacity and maximal exercise Demonstrate and intelligent and caring attitude in linking acerobic capacity and maximal exercise Demonstrate and intelligent and caring attitude in linking acerobic capacity and maximal exercise Demonstrate and horizon addition, endocrine gliands and horizon addition, endocrine addition, enervous system and there are and structure of the revous system. 3. Able to link the relationship between the nervous system and the canonamic previous system and the failaborship between the nervous system and the failaborship differences: Katch VL, MaxAcel P, 2021. Bailow Williams & Structure of the nervous system and the failaborship between the nervous system and the failaborship differences system and the failaborship differences addition differences addition differences addition difference			•				
14 Understand and nergy and function of nerves and function of nerves and hororines and hough attitude in analyzing the process of metabolism during sub-maximal exercise Domonstrate an intelligent and carring attitude in linking aerobic capacity and maximal anaerobic 2.able to relate the chemical classification of functions hormones, hormone action, endocrine glands and hormones, hormones, hormones, hormones, action, endocrine glands and hormones, hormones, hormones, hormones, action, endocrine glands and ther function of the structure of nerves and ther function of the relationship tervous system and the nervous system and the system and the nervous system and the nervous system			•			endocrine	
14 Understand and maximal exercise Demonstrate an intelligent antitude in linking attitude in linkin						glands and	
14 Understand and maximal exercise between the autonomic nervous system and function of the process of netabolism during sub-maximal exercise Demonstrate an intelligent and caring attitude in linking actitude in capacity and maximal anaerobic capacity and the function of the mervous system and function of the result of the autonomic nervous system and function of the nervous system and function of the nervous system and function of the nervous system and the autonomic nervous system autonomic nervous system auton the nervous system auton the nervous system auton the nervous system autonomic nervous system auton the nervous							
14 Understand and maximal exercise Demonstrate an intelligent and caring attructe in linking aerobic capacity and maximal exercise Demonstrate an intelligent and caring attructe in linking aerobic capacity and maximal exercise Demonstrate an intelligent and caring attructe in linking aerobic capacity and maximal exercise Demonstrate an intelligent and caring attructe in linking aerobic capacity and maximal exercise Demonstrate an intelligent attructe in linking aerobic capacity and maximal exercise Demonstrate an intelligent attructe in endocrine glands and hormones, hormone and during sub-maximal exercise Understand and maximum anaerobic capacity and function of the relatomship between the nervous system automic nervous system automic nervous system Criteria: Test Test Test Test and Answers 3 × 50 Material: Structure and function of the nervous system and the the function of the nervous system and the erelatomship between the nervous system and the system and the erelatomship between the nervous system and the erelatomship between the nervous system and the erelatomship between the nervous system and the erelatomship between the nervous system and the exercise Physiology Williams &							
14 Understand and maximum acobic capacity and the maximum acobic capacity and the data capacity and the cata capacity and th			•				
14 Understand and maximul anaerobic capacity and maximal anaerobic capacity ethology and falling to the structure of the anaerobic capacity and maximal anaerobic capacity and the rest of the anaerobic capacity and the rest of the structure and the rest of the structure and the struct							
14 Understand and maximum anaerobic capacity and corine glands and hormones tationship between the nervous system anaerobic capacity anaerobic capacity anaerobic capacity system 1.able to system Criteria: Test Test and Assessment: Provisions and anaerobic capacity system Material: Structure and hormones and anaerobic capacity and maximum anaerobic capacity system 5%							
14 Understand and maximal exercise Demonstrate an intelligent and caring attitude in linking acrobic capacity and maximal anaerobic 2. Jable to relate the chemical classification of mormones, hormone action. endocrine glands and hormones Criteria: Test to the structure of the nervous system and the nervous sy							
14 Understand and maximum and caring attruction of hormones, hormone action, endocrine glands and hormones and hormones action, endocrine action, endocrine action, analyze the structure of and maximum anaerobic capacity and ther function of the nervous system and the nervous system and the nervous system and the nervous system and the eautonomic nervous system and the envous system and the autonomic nervous system and the autonomic nervous system and the envous system and the autonomic nervous							
14Understand and amerobic capacity and maximul anaerobic capacity and maximal anaerobic capacity and maximal anaerobic capacity and maximal anaerobic capacity and maximal anaerobic capacity and maximal anaerobic capacity and maximal anaerobic capacity and maximal anaerobic capacity and maximal anaerobic capacity and maximal anaerobic capacity and maximul anaerobic capacity and maximal exerciseUnipressUnipress14Understand and maximul during sub-maximal exercise Master and understand during sub-maximal exercise Master and maximum anaerobic capacity systemCriteria: Test Form of Assessment: Participatory ActivitiesLectures, Analysis Discussions, and Answers 3 X 50Material: Structure and function of the nervous system and the relationship between the nervous system and the revous system and the revous system and the revous system and the revous system and the revous systemLectures, test <b< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></b<>							
14 Understand and maximul anaerobic 2.able to relate the chemical classification of hormones, hormone action, endocrine glands and hormones Criteria: Lectures, Analysis Material: Structure and function of the nervous system and the autonomic nervous system and system and system and the autonomic nervous system 5%							
14Understand and maximal anerobic Capacity and maximal anaerobic 2. Able to relate the chemical classification of hormones action, endocrine glands and hormones action, endocrine glands and hormones action, endocrine glands and hormones action, endocrine glands and hormones action, endocrine glands and hormones action, endocrine glands and hormones action, endocrine glands and hormones action, endocrine glands and hormones structure of nerves and their function 2. Able to analyze the structure and understand maximum anaerobic capacity and maximum anaerobic capacity and maximum expenditure during structure and understand maximum acoic and maximum evenus system. 3. Able to link the relationship between the nervous system and the function revous system and the function autonomic nervous system and the function system and the function the function the function system and the function the function system and the function the function t							
14Understand and master metabolism during sub-maximal anerobic capacity and nasimal anaerobic 2. able to relate the chemical classification of hormones, hormones action.Criteria: trait trait TestLectures, Analysis Discussion, and malysisMaterial: Structure and burgers5%14Understand and master metabolism during sub-maximal expenditure during understand name master metabolism aniare metabolism aniare metabolism and maximum anaerobic capacity1. table to explain the structure of nerves and the function 2. Able to analyze the structure and understand maximum aeoic and maximum anaerobic capacityCriteria: Test Test Test Test Test Test Structures, Analysis Structure and Structure and the function Participatory ActivitiesLectures, Analysis Discussion, and Answers 3 × 50Material: Structure and function of the nervous system and the function system. 3. Able to link the relationship between the nervous system and the the induction system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomicStructures, Analysis autonomic Physiology autonomic the autonomic nervous systemStructures, Analysis autonomic Physiology, autonomic Physiology, autonomic the autonomicStructures, Autonomic Physiology, autonomic Autonomic Physiology, autonomic <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
14Understand and master energy supply and faigue turing sub-maximal exercise Master and maximum anaerobic classification of hormones action, endocrine glands and hormonesCriteria: Test Test Test Test Test Test Supply and faigue percise Master and understand and master energy supply and faigue turing sub-maximal exercise Master and understand and master metabolis and understand and master metabolis and understand and master metabolis and understand and master metabolis and understand manerobic capacity system. 3.Able to limit the relationship between the nervous system. 3.Able to limit the relationship between the nervous system. 3.Able to limit the relationship between the nervous system and the the he relationship between the nervous system and the the the he relationship between the nervous system and the the he relationship between the nervous system and the the he relationship between the nervous system and the the he relationship between the nervous system and the the he relationship between the crevous system and the the factor, Lippincott Williams & during sub-maximal system and the the he relationship between the crevous system and the the the factor, Lippincott Williams & systemLippincott Williams &							
14Understand and maximal anaerobic Capacity and maximal anaerobic Cable to relate the chemical classification of hormone, action, endocrine glands and hormones, action, endocrine glands and hormones, action, endocrine glands and hormones, action, endocrine glands and hormones, action, endocrine glands and hormones, action, endocrine glands and hormone action, endocrine glands and hormone action, enters and ervices and their function 2.Able to anaerobic capacity anaerobic capacity anaerobic capacity anaerobic capacity systemCriteria: Test Test Porn of Assessment: Participatory ActivitiesMaterial: Analysis Discussions, Discussions, and Answers 3 X 50Structure and function of the nervous system and the relationship between the nervous system and the relationship between the nervous system and the relationship between the nervous system and the relationship between the nervous system and the relationship between the nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous systemSecond test<			and caring				
14Understand and maximal anaerobic 2. Able to relate the chemical classification of hormones, hormones action, endocrine glands and hormonesCriteria: relate the personal diagonal diagonal the autonomic ervous systemLectures, analysis Discussions, and Analysis Discussions, and AnswersMaterial: Structure and function of the nervous system and the and maximal earcise Maximal ervous systemCriteria: rest the the the the the the the the the the structure of nervos and during sub-maximal ervous system and the relationship between the nervous system and the relationship between the nervous system and the the autonomic nervous system and the the autonomic nervous system and the autonomic nervous system and the autonomic nervous systemCriteria: relationship the autonomic the autonomic the autonomic nervous systemCriteria: the the the autonomic the the autonomic the autonomic the autonomic the autonomic the autonomic the autonomic the autonomic the			attitude in				
14Understand and maximal anaerobic 2.able to relate the chemical classification of hormones action, endocrine glands and hormones action, endocrine glands and hormones analyze the structure of analyze the structure analyze the structure analyz			linking				
14Understand and mastimal anaerobic 2. able to relate the chemical classification of hormones, hormone action, endocrine glands and hormones action, endocrine glands and hormones hormones action, endocrine glands and hormones action, endocrine glands and hormonesLectures, Analysis Discussions, and Structure and their function Participatory ActivitiesMaterial: Structure and function of the nervous system and the relationship between the nervous systemStructure and function5%14Understand and master metabolism and understand maximum aeobic analyze the structure anaerobic capacity1.able to explain the structure on analyze the structure and function of the relationship between the nervous system and the relationship between the nervous system and the relationship between the nervous system and the nervous system and the nervous system and the nervous system and the nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous systemEsentials of Exercise Physiology Attivities14Understand and the structure anaerobic capacityCriteria: Test <b< th=""><th></th><th></th><th>aerobic</th><th></th><th></th><th></th><th></th></b<>			aerobic				
14Understand and master energy supply and fatigue Understand and master energy expenditure during rest and exercise Master and during sub-maximal anaerobic and maximum anaerobic capacity1.able to explain the the fruction 2.Able to analyze the system. 3.Able to link the relationship between the nervous system.Criteria: Test Test Test Participatory ActivitiesLectures, Analysis Discussions, and Analysis Discussions, and Analysis Structure and function of the nervous system.Material: Structure of nerves and Participatory Activities5%14Understand and master metabolic and maximum anaerobic capacity1.able to analyze the system. 3.Able to link the relationship between the nervous system and the relationship between the nervous system and the relationship between the nervous system and the relationship between the nervous system and the relationship between the nervous system and the in the it he it he <th></th> <th></th> <th>capacity and</th> <th></th> <th></th> <th></th> <th></th>			capacity and				
14Understand and master energy updrestand exercise understand and master energy1.able to explain the structure of nervous system.Criteria: Test and exercise their function of the infunctionMaterial: structure of the structure of structure of the structure of structure of their function of the infunctionMaterial: structure of structure of system and the system and the nervous systemMaterial: system5%14Understand and master metago master metago in analyze the structure of of the nervous system.1.able to explain the structure of their functionCriteria: Test and exercise their function of the structure of their function of the nervous system.Structure of structure of structure of the structure of the structure of the nervous system and the the nervous system and the nervous system and the nervous system and the nervous system and the autonomic nervous system and the autonomic nervous systemStructure of the structure of the nervous system and the autonomic nervous systemStructure of structure of the structure and function of the nervous system and the autonomic nervous systemStructure of structure structure and function of the nervous systemStructure of structure structure autonomic nervous systemStructure of structure structure autonomic pervous systemStructure of structure structure autonomic the autonomic nervous systemStructure of structure structure au			maximal				
14Understand and master energy supply and fatigue Understand and master energy supply and fatigue Understand and master energy supply and fatigue Understand and master energy supply and fatigue Understand and master energy system and their function of the nervous system.1. able to explain the structure of nerves and their function of the nervous system.Criteria: Test Form of Assessment : Participatory ActivitiesLectures, Analysis Discussions, and Questions and AnswersMaterial: Structure and function of the nervous system and the autonomic nervous system.5%14Understand and master metabolism during sub-maximal and exercise Master and understand maximum anaerobic capacity1. able to explain the structure of nervous system.1. able to explain the structure of nervous system and the function of the nervous system and the autonomic nervous system and the nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous systemMaterial: system system autonomic the autonomic nervous systemStructure and the autonomic the autonomic nervous systemStructure the the autonomic the autonomic nervous systemLectures, the the autonomic the autonomic nervous systemMaterial: test test <td></td> <td></td> <td>anaerobic</td> <td></td> <td></td> <td></td> <td></td>			anaerobic				
14Understand and master energy supply and fatuge Understand and master metabolism during sub-maximal exercise Master and understand and master metabolism during sub-maximal exercise Master and understand and master metabolism during sub-maximal exercise Master and understand and master metabolism during sub-maximal exercise Master and function of the nervous system.Criteria: Test TestLectures, Analysis Discussion, and Questions and AnswersMaterial: Structure and function of the nervous system and the if function of the nervous system.Material: Structure and function of the nervous system and the relationship between the nervous system and the the the tautonomic nervous system and the the the tautonomic nervous system and the the the the tautonomic nervous system and the the the the tautonomic nervous system and the the the tautonomic nervous system and the the the the tautonomic nervous system and the th			2.able to				
14Understand and master energy supplicities1.able to explain their function of nerves and their functionCriteria: TestLectures, Analysis Discussions, and Questions and AnswersMaterial: Structure and function of the nervous system and the autonomic nervous system and the and maximum anaerobic capacityCriteria: TestStructures, Analysis Discussions, and AnswersMaterial: structure and function of the nervous system and the the understand maximum anaerobic capacityStructure and the in function of the nervous system and the incomic nervous system and the nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous systemMaterial: system attributed the <th></th> <th></th> <th>relate the</th> <th></th> <th></th> <th></th> <th></th>			relate the				
14Understand and master energy supply and radigue Understand and master energy understand and master metabolism analyze the structure during expenditure during expenditure during expenditure during analyze the structure and their function of the nervous analerobic capacity1. able to explain the structure of the structure of there in the structure of of the nervous system.Criteria: Test Test Test Discussions, and Participatory ActivitiesLectures, Analysis Discussions, and and Answers structure and their function of the nervous system.Material: system5%3. Able to link the relationship between the nervous system1. able to expenditure of the structure of of the nervous system.Criteria: Test Test Test Test Test Test Test Test Test Test Test Test Structures, Analysis Discussions, and And Answers Structure and the the relationship between the nervous system.5%3. Able to link the relationship between the nervous system and the autonomic nervous systemCriteria: Test Test Test Test Test Test Test Test Test Test Structures, And Structures, And Structures, And Structures, And Answers Structures, And Criteria: Test Test Test Test Test Test Test Test Test Structures, And And Answers Structure Structure Structure Structure Test Tes			chemical				
14Understand and master energy supply and fatigue Understand energy expenditure during enterstand energy expenditure during master energys supply and fatigue Understand and master energy supply and fatigue 2. Able to enerves and their function 2. Able to analyze the structure of nervous system.Criteria: Test Test Form of Assessment I: Participatory ActivitiesLectures, Analysis Discussions, and Answers 3 x 50Material: Structure and function of the nervous system and the autonomic nervous system.5%3. Able to link the relationship between the nervous system.2. Able to link the relationship between the nervous system.Criteria: Test Test Porm of Assessment I: Participatory ActivitiesLectures, Analysis Discussions, and Answers 3 X 50Material: Structure and function of the nervous system and the autonomic nervous system5%14Understand and unction of the nervous system.Criteria: Test Participatory ActivitiesLectures, Analysis Discussions, and Answers 3 X 50Material: Structure and function of the nervous System and the autonomic nervous system5%14Understand maximum anaerobic capacity1.able to ink the nervous systemCriteria: Test Test Participatory ActivitiesLectures, Analysis Discussions, and Answers S X 50Material: Structure and function System Comparison Activities14Understand and maximum and maximum and maximum and maximum and maximum system and the<			classification				
14Understand and master energy supply and fatigue Understand and master metabolism exercise Understand and master metabolism anaerobic capacityCriteria: Test Test Test TestLectures, Analysis Discussions, and Questions and Answers 3 X 50Material: Structure and function of the nervous system and the relationship between the nervous system and the autonomic nervous system autonomic nervous system autonomic nervous 			of				
14Understand and master energy supply and fatigue Understand energy expenditure during expenditure during master metabolism during sub-maximal analerobic capacity1.able to explain the structure of nerves and their function 2.Able to analyze the structureCriteria: Test Test Participatory ActivitiesLectures, Analysis Discussions, and Questions and AnswersMaterial: Structure and function of the nervous system and the the autonomic nervous system5%14Understand and master metabolism during sub-maximal and maximum anaerobic capacity1.able to explain the structure of nervous system.Criteria: Test Test Participatory ActivitiesLectures, Analysis Discussions, and Questions and Answers 3 X 50Material: Structure and function of the nervous system and the autonomic nervous system5%14Understand mervous system.Criteria: Test Test Participatory ActivitiesLectures, Analysis Discussions, and Questions and Answers 3 X 50Material: Structure and the nervous system and the autonomic nervous system5%14Understand mervous system1.able to mervous systemCriteria: Test Test TestLectures, Analysis Discussions, and Questions and AnswersMaterial: Structure and the nervous system5%151.able to mervous system1.able to mervous systemCriteria: Test Test Test Test Test Test Test Test Test Test Test Test Test			hormones,				
14Understand and master energy supply and fatigue Understand and master metabolism during sub-maximal analyze the structure of nerves and their function 2.Able to analyze the structure and function of the nervous system.1. able to explain the structure of nerves and their function 2.Able to analyze the structure and function of the nervous system.Criteria: Test Test Test Test Test Test Discussions, and Questions and AnswersMaterial: Structure and function of the nervous system and the intervous system and the relationship between the nervous system.Material: Structure and function of the nervous system and the intervous system and the relationship between the nervous system and the relationship between the nervous system and the autonomic nervous system and the autonomic nervous systemMaterial: Structure and the <th></th> <th></th> <th>hormone</th> <th></th> <th></th> <th></th> <th></th>			hormone				
14Understand and master energy supply and faigue Understand energy rest and exercise Understand and master metabolism during sub-maximal exercise Master and maximum acobic and maximum acobic capacity1.able to explain the structure of nerves and their function 2.Able to analyze the structure and function of the nervous system.Criteria: Test Torm of Assessment : Participatory ActivitiesLectures, Analysis Discussions, and Questions, and structure of nerves and their function 2.Able to analyze the structure and function of the nervous system.Material: Structure of nerves and the relationship between the nervous system and the relationship between the nervous system and the relationship between the nervous system and the autonomic nervous system and the autonomic nervous systemMaterial: Structures, Analysis and answers structures, and answers structures, and answers structures, and and answers structures, and and and answers structures, and and and and answers structures, and and and answers structures, and and and answers structures, and and and answers and and answers structures, and and answers and and answers structur			action,				
14Understand and master energy supply and fatigue Understand energy expenditure during rest and exercise Understand and master metabolism during sub-maximal exercise Master and anerstand maximum acebic and maximum anaerobic capacity1. able to explain the structure of nerves and their function 2. Able to analyze the structure and induction of the nervous system.Criteria: Test Test Participatory ActivitiesLectures, Analysis Discussions, and Questions and AnswersMaterial: Structure and function of the nervous system and the autonomic nervous system.5%3. Able to link the relationship between the nervous system and the relationship between the nervous system and the nervous system and the relationship between the nervous system and the nervous system and the relationship between the nervous system and the relationship between the nervous system and the nervous system and the relationship between the nervous system and the autonomic nervous systemLectures, Analysis Discussions, and Questions and AnswersMaterial: Structure and function of the nervous system5%14Understand and maximum anaerobic capacityCriteria: the relationship between the nervous system and the autonomic nervous systemCriteria: test test test test test test test test test test test test1. able to test test test test test test test test test test test test test test test test<							
14 Understand and master energy supply and fatigue Understand energy expenditure during rest and exercise Understand and master metabolism during sub-maximum aeobic and maximum aeobic and maximum anaerobic capacity 1.able to explain the structure of nerves and their function 2.Able to analyze the structure and function of the nervous system. Criteria: Test Lectures, Analysis Discussions, and Questions and Answers 3 × 50 Structure and function of the nervous system and the relationship between the nervous system. 5% 3.Able to link the relationship between the nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the nervous system and the nervous system and the nervous system and the nervous system. 3.Able to link the relationship between the nervous system and the nervous system and the autonomic nervous system and the nervous system			0				
master energy supply and fatigue Understand energy rest and exercise Understand and master metabolism during sub-maximal exercise Master and understand maximum acobic capacityTest Test TestAnalysis Discussions, and Questions and AnswersStructure and function of the nervous system and the the function2.Able to maximum acobic capacity2.Able to analyze the structure and function of the nervous system.Test TestAnalysis Discussions, and Questions and AnswersStructure and function of the nervous system and the the relationship between the nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous systemCall the test <b< td=""><td></td><td></td><td>hormones</td><td></td><td></td><td></td><td></td></b<>			hormones				
master energy supply and fatigue Understand energy rest and exercise Understand and master metabolism during sub-maximal exercise Master and understand maximum aeobic and maximum anaerobic capacityTest rest and perves and analyze the structure and functionStructure and function of the nervous system and the pervous system.3.Able to maximum anaerobic capacityand function of the nervous system.Test relationship between the nervous system and the intervous system.Analysis Discussions, and Questions and AnswersStructure and function of the nervous system and the nervous system.3.Able to link the relationship between the nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous systemCall the transfer total total total total total total total totalStructure and function of the nervous system.1.100-100000000000000000000000000000000	1/	Inderstand and	1	Critoria	Loctures	Matorial	E04
supply and fatigue Understand energy expenditure during understand and master metabolism anaerobic capacityextructure of nerves and their functionextructure of nerves and their functionform of Assessment : Participatory ActivitiesDiscussions, and Questionsfunction of the nervous system and the system.2.Able to analyze the structure and understand maximum anaerobic capacity2.Able to analyze the structure and function of the nervous system.Form of Assessment : Participatory ActivitiesDiscussions, and Questions and Answers 3 X 50function of the nervous system and the the autonomic nervous system and the relationship between the nervous system and the autonomic nervous system and the1. Discussions, and exercise2.Able to analyze the structure and function of the nervous system.7. Discussions, and Questions and Answers 3 X 50Function of the nervous system and the autonomic nervous system3. Able to link the relationship between the nervous system and the autonomic nervous systemFunction of the nervous system4. He relationship between the nervous system and the autonomic nervous systemExercise Physiology 4th Edition, Lippincott Williams &	14	master energy					3%0
Understand energy expenditure during rest and exercise Understand and master metabolism during sub-maximal exercise Master and duration understand maximum aeobic and maximum anaerobic capacityStructure of nervous system.Form of Assessment : Participatory ActivitiesIncruois and Questions and AnswersIncruois system and the relationship between the nervous system.3.Able to link the relationship between the nervous system and the relationship between the nervous system.Form of Assessment : Participatory ActivitiesForm of Assessment : Participatory ActivitiesIncruois system and the and Answers 3 X 50Incruois relationship between the nervous system.3.Able to link the relationship between the nervous system and the autonomic nervous system and the autonomic nervous systemForm of Assessment : Participatory ActivitiesIncruois and Questions and Answers 3 X 50Incruois relationship between the nervous system.3.Able to link the relationship between the nervous system and the autonomic nervous systemForm of Assessment : Participatory ActivitiesForm of Assessment : Participatory Activities4Heat to independenceParticipatory ActivitiesForm of Assessment : Participatory ActivitiesParticipatory Activities5Solution and function the autonomic nervous systemForm of Assessment : Participatory ActivitiesParticipatory Activities6Participatory ActivityParticipatory ActivityParti		supply and fatigue					
expenditure during rest and exercise Muderstand and master metabolism during sub-maximal exercise Master and understand maximum anaerobic capacityParticipatory ActivitiesQuestions and Answers 3 X 50Normal system and the nervous system.2. Able to analyze the structure and understand maximum anaerobic capacity2. Able to and function of the nervous system.Participatory ActivitiesQuestions and Answers 3 X 50system and the nervous system and the autonomic nervous system and the autonomic nervous system and the relationship between the nervous system and the the relationship between the nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous systemParticipatory Activities Questions and Answers 3 X 50Normal the system and the autonomic References: Katch VL, McArdle WD, Katch FI, 2011: 2011: 2011: 2011: Essentials of Exercise Physiology 4th Edition, Lippincott Williams &		Understand energy		Form of Assessment :			
Understand and master metabolism during sub-maximal exercise Master and understand maximum aeobic and maximum anaerobic capacityUnderstand and yze the structure and function of the nervous system.and Answers 3 X 50the relationship between the nervous system and the autonomic nervous system.3.Able to link the relationship between the nervous system and the relationship between the nervous system and the the the relationship between the nervous system and the the the the relationship between the nervous system and the <td></td> <td>expenditure during</td> <td></td> <td></td> <td></td> <td></td> <td></td>		expenditure during					
master metabolism during sub-maximal exercise Master and understand 							
Country submatrial exercise Master and understand maximum aeobic and maximum anaerobic capacitystructure and function of the nervous system.between the nervous system.3.Able to link the relationship between the nervous system and the the the autonomic nervous system and the the the the the the system and the 		master metabolism					
and understand maximum aeobic and maximum anaerobic capacityand function of the nervous system.system and the autonomic nervous system.3.Able to link the relationship between the nervous system and the autonomic nervous system and the system.References: Katch VL, McArdle WD, Katch FI, 2011:System and the autonomic nervous system and the autonomic nervous systemPhysiology 4th Edition, Lippincott Williams &		during sub-maximal					
maximum aeobic and maximum anaerobic capacityof the nervous system.System and nervous system.3.Able to link the relationship between the nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous system and the autonomic nervous systemSystem and References: Katch VL, McArdle WD, Katch FI, 2011: Essentials of Exercise Physiology 4th Edition, Lippincott Williams &							
and maximum nervous anaerobic capacity nervous system. 3.Able to link the relationship between the Katch VL, nervous System and the Essentials of Exercise Physiology the Lippincott ystem Uppincott							
anderobic capacity system. 3.Able to link system the relationship between the Katch FI, nervous 2011: system and Essentials of the autonomic nervous Physiology system Lippincott williams & Williams &		and maximum					
3.Able to link the relationship between the nervous system and the autonomic nervous system References: Katch VL, MCArdle WD, Katch FI, 2011: Essentials of Exercise Physiology 4th Edition, Lippincott Williams &		anaerobic capacity					
the relationship between the nervous system and the autonomic nervous systemKatch VL, McArdle WD, Katch FI, 2011: Essentials of Exercise Physiology 4th Edition, Lippincott Williams &							
relationship between the nervous system and the autonomic nervous system							
between the nervous system and the autonomic nervous system autonomic nervous system duthe autonomic nervous system duthe duth							
nervous system and the autonomic nervous system							
System and Essentials of the Exercise autonomic Physiology nervous Lippincott system Williams &							
the Exercise Physiology atthe Edition, Lippincott System Williams &							
autonomic nervous system							
nervous system 4th Edition, Lippincott Williams &							
system Lippincott Williams &							
Williams &							
			· ,				
Wilkins;						vviikins;	

15	Able to find problems that occur due to errors in identifying the ability of athletes or the community to master a sports movement both independently and in groups and be responsible	 Students are able to give at least 3 examples of sports problems related to movement control Students are able to identify the sources of problems related to this matter Identify the problem based on the source and the impact it will have on society Students are able to explain the impact of the problem and then design a pattern to solve the problem 	Criteria: It is considered correct if the answer is 80% correct Form of Assessment : Participatory Activities, Tests	Lectures, Practical Discussions, Analysis, and Questions and Answers 3 X 50	Material: Development of body movements based on age Reference: <i>Lecturer</i> <i>Learning</i> <i>Module</i>	4%
16	UAS	22	Criteria: Maximum score if you can answer the question correctly Form of Assessment : Participatory Activities, Tests	UAS	Material: Sports physiology Reference: Lecturer Learning Module	15%

Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage
1.	Participatory Activities	70%
2.	Practice / Performance	7.5%
3.	Test	22.5%
		100%

Notes

- 1. Learning Outcomes of Study Program Graduates (PLO Study Program) are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
- 2. The PLO imposed on courses are several learning outcomes of study program graduates (CPL-Study Program) which are
- used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
 Program Objectives (PO) are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
- Subject Sub-PO (Sub-PO) is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
- Indicators for assessing ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
- 6. Assessment Criteria are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
- 7. Forms of assessment: test and non-test.
- 8. Forms of learning: Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
- 9. Learning Methods: Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning,
- Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods. 10. Learning materials are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
- 11. The assessment weight is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
- 12. TM=Face to face, PT=Structured assignments, BM=Independent study.