METABOLISM OF CARBOHYDRATES: MAJOR AND MINOR METABOLIC PATHWAYS

1	Course Title:	METABOLISM OF CARBOHYDRATES: MAJOR AND MINOR METABOLIC PATHWAYS
2	Course Code:	TTB6004
3	Type of Course:	Compulsory
4	Level of Course:	Third Cycle
5	Year of Study:	1
6	Semester:	2
7	ECTS Credits Allocated:	8.00
8	Theoretical (hour/week):	2.00
9	Practice (hour/week):	2.00
10	Laboratory (hour/week):	0
11	Prerequisites:	No
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Prof. Dr. MELEHAT DİRİCAN
15	Course Lecturers:	Yok
16	Contact information of the Course Coordinator:	mdirican@uludag.edu.tr 2953912 Uludağ Üniversitesi, Tıp Fakültesi Biyokimya Anabilim Dalı 16059, Bursa
17	Website:	
18	Objective of the Course:	The aim of this course is to teach the structural and functional features of carbohydrates in human body in an advanced level.
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	

	1	To identify the major classes of carbohydrates and give examples of each
	2	To explain the fate of glucose and other carbohydrates in the body including yhe pathways of glycolysis, glycogenesis and the hexose monophosphate shunt
	3	To explain the importance of gluconeogenesis and glycogenolysis for maintaining blood sugar concentrations
	4	To relate the mechanism for glucose and other carbohydrates to act as reducing substance
	5	
	6	
	7	
	8	
	9	
	10	

21	Course Content:	
	Course Content:	
Week	Theoretical	Practice

1	Structures of carbohydrates	Qualitative methods for total reducing substance in urine (Fehling)
2	Digestion and absorbtion of carbohydrates	Polarimetry
3	Glycolysis	Osazone testing
4	Regulation of glycolysis	Identification of sugars
5	Oxidation of pyruvate	Glucose measurements in whole blood
6	TCA cycle	Glucose oxidase method
7	Regulation of TCA cycle	Measurements of lactate
8	Structure of glycogen and glycogen synthesis	Measurements of pyruvate
9	Glycogenolysis	Postprandial glucose measurements
10	Gluconeogenesis and regulation of gluconeogenesis	OGTT and interpretation
11	Pentose phosphate pathway	Bial's test
12	Uronic acid pathway	Selivanoff's test
13	Glycosaminoglycans	Mucic acid test
14	Mucopolysaccharidoses and glycogen storage diseases	Tollen's test

22	Textbooks, References and/or Other Materials:	1- Tietz textbook of clinical chemistry, Eds: Burtis Carl, Ashwood Edward, Saunders Company, 1994 2- Biyokimya Eds: Gürdöl Figen, Ademoğlu Evin, Nobel Tıp Kitabevleri, 2006 3- Harper's Illustrated Biochemistry, 27th Edition, Eds: Robert K. Murray, Daryl K. Granner, Victor W. Rodwell, The McGraw-Hill Companies, Inc. 2006
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	0	0.00
Quiz	0	0.00
Home work-project	2	20.00
Final Exam	1	80.00
Total	3	100.00
Contribution of Term (Year) Learning Activities to Success Grade		20.00
Contribution of Final Exam to Success Grade		80.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		

24	**ECTS / WORK LOAD TABLE**

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	14	2.00	28.00
Self study and preperation	14	10.00	140.00
Homeworks	2	10.00	20.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	0	0.00	0.00
Others	0	0.00	0.00
Final Exams	1	20.00	20.00
Total Work Load			236.00
Total work load/ 30 hr			7.87
ECTS Credit of the Course			8.00

25	**CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS**															
	PQ1	**PQ2**	**PQ3**	**PQ4**	**PQ5**	**PQ6**	**PQ7**	**PQ8**	**PQ9**	**PQ10**	**PQ11**	**PQ12**	**PQ13**	**PQ14**	**PQ15**	**PQ16**
ÖK1	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK4	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	**1 very low**	**2 low**	**3 Medium**	**4 High**	**5 Very High**