QF01/0408-4.0E	Course Plan for Bachelor program - Study Plan Development and Updating Procedures/ Mathematics Department

Study plan No.	**2021-2022**		**University Specialization**	**Bachelor of Mathematics**	
Course No.	**0101361**		**Course name**	**Methods of Teaching Mathematics**	
Credit Hours	**3**		**Prerequisite/ Co-requisite**	**Dept. Approval**	
Course type	☐MANDATORY UNIVERSITY REQUIREMENT	☐ UNIVERSITY ELECTIVE REQUIREMENTS	☐ FACULTY MANDATORY REQUIREMENT	☐ Support course family requirements	✓ **Mandatory requirements**	☐ Elective requirements
Teaching style	☐ Full online learning		✓ **Blended learning**		☐ Traditional learning	
Teaching model	☐ 1 Synchronous: 1 asynchronous		✓ **1 face to face : 1 asynchronous**		☐ 2 Traditional	

Faculty member and study divisions' information (to be filled in each semester by the subject instructor)

Name	Academic rank	Office No.	Phone No.	E-mail	
Division number	**Time**	**Place**	**Number of students**	**Teaching style**	**Approved model**

Brief description

This course introduces students to a variety of modern methods for teaching mathematics by distinguishing between the behaviorist teaching methodologies and the more recent constructivist methods of teaching. In addition, this class familiarizes students with the standards of the NCTM. It also develops students' abilities to prepare lesson plans and compose valid exams.

Learning resources

Course book information (Title, author, date of issue, publisher ... etc)	1- Mathematics Curriculum and Teaching Methods, Ibrahim AqilanDar Al-Masirah for Publishing and Distribution, 3rd Edition, 2018. 2- School mathematics curricula, Farid Abu Zina, 3rd floor, Amman, 2013. 3- Articles and research related to the development of learning and learning mathematics.			
Supportive learning resources (Books, databases, periodicals, software, applications, others)	1- Teaching mathematics to all children, William Obeid, 4th Edition, 2015. 2- Mathematics books for the basic stage, Ministry of Education, Jordan, 2016.			
Supporting websites	https://www.cbmsweb.org/the-mathematical-education-of-teachers			
The physical environment for teaching	✓ **Class room**	☐ labs	✓ **Virtual educational platform**	☐ Others
Necessary equipment and software				
Supporting people with special needs				
For technical support				

Course learning outcomes (S= *Skills, C= Competences K= Knowledge,)*

No.	Course learning outcomes	The associated program learning output code
	Knowledge	
K1	Knowing the parts of knowledge in mathematics and methods of teaching each part.	**MK1**
K2	Identifying the parts of Goerge Bolea strategy in mathematical problems	**MK1**
K3	Descripting of educational theorems on mathematics	**MK2**
K4	Summarizing the tools evaluating in mathematics	**MK2**
	Skills	
S1	Writing a daily and annual plan for a school mathematics course.	**MS1**
S2	Formulating a test in school mathematic course via description table.	**MS1**
S3	Incorporating the theory of multiple intelligences into the teaching of mathematics	**MS2**
	Competences	
C1	Croupy work on the steps to solve the mathematical problem according to the strategy of George Polia.	**MC 01**
C2	Valuing the role of mathematics teaching methods in building teacher educational knowledge	**MC 02**

Mechanisms for direct evaluation of learning outcomes

Type of assessment / learning style	Fully electronic learning	Blended learning	Traditional Learning (Theory Learning)	Traditional Learning (Practical Learning)
Midterm exam	30%	**30%**	40%	30%
Participation / practical applications	0	**0**	10%	30%
Asynchronous interactive activities	30%	**20%**	0	0
Final exam	40%	**50%**	50%	40%

Schedule of simultaneous / face-to-face encounters and their topics

Week	Subject	learning style	Reference
1	Mathematics concept and its importance. The modern view of mathematics versus the traditional view. Mathematical structure and its properties.	Lecture	1-20 Ref 1
2	Elements of mathematical knowledge (concepts, generalizations, algorithms and skills). Practical examples of elements of the mathematical knowledge from the school curriculum.	Lecture	21-27 Ref 1
3	Constructivist Theory. The role of the teacher from a constructivist perspective. The role of the student from a structural perspective.	Lecture	2-9 Ref 2

4	Practical lessons illustrating constructivist versus behavioral learning. Social Constructivism and Vygotsky's Position.	Lecture	10-30 Ref 1
5	Objectives of the National Council of Teachers of Mathematics (NCTM). Solve the mathematical problem according to George Polia. Problem. Solving a fear of Mathematical Problems (Feelings and Attitudes)	Lecture	31-50 Ref 1
6	Mathematical problem solving strategies and applied problems from the school curriculum. Features of Mathematical Communication	Lecture	51-60 Ref 1
7	Practical math situations do math communication in the classroom. Connecting mathematics to the real life (real mathematical situations). Features of Mathematical Thinking (Mathematical Induction, Mathematical Deduction)	Lecture	61-72 Ref 1
8	The theory of multiple intelligences and learning mathematics. Practical mathematical situations that simulate the theory of multiple intelligences. Activating the role of mathematics and its logic in social and democratic life.	Lecture	Articals
9	Educational goals and levels. Formulating educational goals. Classification of educational goals (cognitive, emotional, skill). **Midterm Exam** 30%	Lecture	104-110 Ref 1
10	Planning concept and its importance. Prepare a lesson plan. Students present class plans that are discussed collaboratively among the students themselves.	Lecture	119-127 Ref 1
11	Yearly planning concept. Prepare the yearly plan. Students provide semester plans for various school classes	Lecture	128-134 Ref 1
12	Authentic Assessment. Real assessment vs. traditional assessment. Real assessment tools	Lecture	Articles and Researches
13	Types of items in the achievement test. Building the achievement test according to the specification table.	Lecture	165-175 Ref 1
14	Analysis of achievement test results. Calculate the difficulty coefficient of the test item. Calculate the discrimination coefficient for a paragraph.	Lecture	201-217 Ref 1
15	Students present and discuss practical lessons.	Lecture	School books
16	**Final Exam**		

Schedule of asynchronous interactive activities (in the case of e-learning and blended learning)

Week	Task / activity	Reference	Expected results
1	Mathematics definitions and its importance	Ref 1	Self-reading and Discussion
2	Interactive Video 1: The Importance of Mathematics	E-learning	Discussion in the class

3	Homework1: On the subjects studied on the first three weeks	(Lecture notes and Ref.1)	Submit a pdf or word sheet
4	Quiz 1	All subjects were studied on the first three weeks	Submitting on the E-learning
5	An interactive activity to analyze the content of a mathematics unit for any school class.	Internet sources and the other Supportive learning resources	Presentation
6	Interactive Video 2: Strategies for Teaching Elements of Mathematical Content	Internet sources and the other Supportive learning resources + Ref 1	Discussion in the class
7	Homework 2 Write educational objectives within general classifications.	(Lecture notes and Ref.1)	Submit a pdf or word sheet
8	Activity 2: Make a 5-10 minute presentation on one of the topics in the lesson plan	Internet sources and the other Supportive learning resources	Talk and feedback
9	A related topic that enriches the previous topics	Internet sources and the other Supportive learning resources	Discussion in the class
10	Interactive Video 2: Learning Theories	Ref.1	Discussion in the class
11	Extra reading	(Lecture notes and Ref.1)	Submit a pdf or word sheet
12	Activity 3: Make an integrated daily plan for a school sports topic	School math books	Talk and feedback
13	Quiz 2	On the subjects studied on the subject studied after midexam	Submitting on the E-learning
14	Activity 4: Make a presentation of 5-10 minutes, share a topic in the mathematics textbooks	School math books	Talk and feedback
15	Completing the presentation of previous week	School math books	Talk and feedback
16	**Final Exam**	-	