FOUNDATION PROGRAM | MATH UNIT

COURSE SYLLABUS

TERM-1 (2020-2021)

Course Title : **INTERMEDIATE ALGEBRA**

Course Code : **FPM 102B – Level 2 – PURE**

Teaching Load : **Five (4) hours weekly**

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Recommended Text Book:

1) Algebra for Cllege Students: Jerome Kaufmann, Karen L. Schwitter, Thomson Brooks/Cole, year 2007, 10th Edition.

2) e–text book: Algebra and Trigonometry, 6th Edition, Margaret L. Lial, John Hornsby, David I. Schneider, Callie Daniels, My lab Math - Pearson

DU – Vision:

Dhofar University aspires to occupy a recognized position among the institutions of quality higher education.

DU – Mission:

Dhofar University strives to achieve excellence in teaching, research and community service, in an open learning environment conducive to creativity and innovation and to the acquisition of cutting-edge professional knowledge.

DU - Values:

The core values of Dhofar University are:

1. Academic excellence
2. Individual responsibility
3. Continuous improvement
4. Active citizenship
5. Long-Life learning

▫ رؤية البرنامج :

يتطلع البرنامج التأسيسي إلى احتلال مكانة مرموقة بين البرامج التأسيسية في السلطنة من خلال توفير تعليم ذات جودة عالية

▫ رسالة البرنامج :

يسعى البرنامج التأسيسي لتزويد الطلبة بتعليم ذات جودة عالية يستند الى معايير المخرجات التعليمة في بيئة تشجع على التميز و التعلم المستمر.

▫ قيم البرنامج :

- التميز الأكاديمي
- تحمل المسؤولية الفردية
- تحسين القدرات الذاتية باستمرار
- المواطنة الفاعلة
- التعلم المستمر

Learning Objectives:

* Acquiring the knowledge necessary for further study of mathematics at higher levels and for pursuing the study of other curricular subjects.

* Mastering the language of mathematics and using it to solve real-life problems that may face students now or in the future.

* Enhancing students' intellectual abilities and self-confidence, and encouraging renovation and innovation by allowing them to uncover relationships and conceive mathematical patterns and models.

* Developing the mathematical sense in students and employing mathematical methods in life and in other subjects.

Learning Outcomes:

At the end of the Course, the students will be able to:

- Define a function graphically and by set notation, finding the domain of certain types of functions, and evaluating functions.
- Identify exponential functions, draw their graphs, and solve their equations.
- Define the Logarithmic functions, draw their graphs, and solve their equations.
- Use appropriate software (Geometry Application) to interpret Functions.
- Use the three types of symmetry of an equation to sketch its graph.
- Use the relationship between exponents and logarithms to solve related problems.
- Define and apply the rules, more types of identities, and proof of trigonometric functions.
- Define and solve different trigonometric functions and express them graphically.
- Use the law of sines and cosines to solve a triangle and real-life problems.
- Partial fraction use polynomial long division.
- Measure central tendency, mean, median, mode, midrange, sample space and introduction to probability.

Academic Honesty:

Students are expected to complete all work with the highest standard of honesty and integrity. Plagiarism, forgery, cheating or any form of academic misconduct will not be tolerated. Any of the above may cause a student's final course grade to be lowered significantly or the student may receive a failing grade, depending on the severity of the offence. Plagiarism is the presentation of the work of another as one's own work. (Refer to DU Catalogue)

Plagiarism:

Plagiarism is a particular form of cheating and you must avoid it at all costs. Any case of plagiarism will be given zero in that section of assessment.

Class Management:

- Students are required to arrive to all classes on time.
- Use of mobile phone is not allowed during the lecture time. You must, therefore, switch off your mobile phone before you enter the lecture room.

Attendance Regulation:

Level	1st warning Hours of absences	2nd warning Hours of absences	Final warning Hours of absences	Withdrawal
Math 1 & 2	7.15 %	14.2 %	21.43	25.1 %

Students will receive copies of warning letters in their DU email.

Evaluation and Grading:

Exams will be introduced on Moodle.
An Interactive Math Platform (My Lab Math from Pearson) will be integrated with Moodle to be applied within CA.

Quiz-1	Mid Term	Quiz-2	Assignments	Final Exam	Exit Exam	Final Grade
10 %	30 %	10 %	10%	40 %	50 %	100 %

Continuous Assessment (CA) (30%):

Portfolio - Assignments	**10 %**
Quiz 1	**10 %**
Quiz 2	**10 %**

Useful Links / Websites:

1. **http://www.onlinemathlearning.com/relations-functions.html [video]**
2. **http://www.youtube.com/watch?v=5p2859SCzdM [video]**
3. **http://www.youtube.com/watch?v=6AVlDcLl_hs&feature=related [video– Square Root Function]**
4. **http://www.webmath.com/parabola3.html**
5. **http://www.youtube.com/watch?v=xp1TeBfkLPg [video]**
6. **http://www.youtube.com/watch?v=9xQopG2mZXo [Video]**
7. **http://www.youtube.com/watch?v=x60VwlBOBQA [video : Reflection of e^x like e^{-x} and $-e^x$]**

7. **http://www.wtamu.edu/academic/anns/mps/math/mathlab/beg_algebra/beg_alg_tut24_ineq.htm [Tutorial]**

Study Plan – Math (Level 2 Pure) – Topics to be covered during Term-1(2020-2021)

Weeks (Dates)	Topics to Be Covered	Remarks
Week 1 (06/09/20 – 10/09/20)	- Introduction to Online Classes **8.1** Concept of Functions	Through Moodle & What App groups.
Week 2 (13/09/20 – 17/09/20)	**8.1 Complete:** Concept of a Function.	8.1 Definition 8.1 p 405, Vertical–Line Test P 406, Examples: 1,4,5,6(a, b) P 406-409. Problems: (1-14), (15-19), (57-59), (63-67) P.411-412.
Week 3 (20/09/20– 24/09/20)	**8.4** Use appropriate software (Geometry Application) to interpret Quadratic Function. **(in portfolio)** **10.1.a** Use appropriate software (Geometry Application) to interpret Exponential. Function. **(in portfolio)** **10.1.b** Solving Exponential Equations. **10.4** Logarithms (Definition, Properties and solving Logarithmic Equation).	8.4 Example:7. P:436. Problems:59 P:438. 10.1.a Example:9 P:537. Problems:50,51 P:539 10.1.b Examples: (1-5) P 533-534. Problems: 1,3,5,7,9, 17,21 p. 538. 10.4 Examples: (3-14) P 560-565 Problems: (1-5), (11-15), (21-32), (41-45), (51-55), (69-74), (81-85), (89-100) P. 566-567.
Week 4 (27/09/20– 01/10/20)	**Continue 10.4** solving Logarithmic Equation). **10.5** Understand the inverse relationship between exponents and logarithms.	10.5 Example: 1 only P.568-569 Problems: 42-46 p.573 **Quiz-1 10% (09/01/2020)**
Week 5 (04/10/20– 08/10/20)	**10.6** Use the relationship between exponents and logarithms to solve related problems **10.2** Solve simple real-life problems involving exponential and logarithmic functions.	10.6 Examples: 1,2,3,4 p. 575-576. Problems 1,3,5,7,9,13,15 ,19, (21-25) p. 581-582. 10.2 Examples:(1-6) P 540- 545. Problems: 24,30, P 547.
Week 6 (26/01/20– 30/01/20)	**Mid-Term Exam Week**	**Mid-Term Exam 30%**

Week 7 (18/10/20– 22/10/20)	**7.5** Graphing Nonlinear Equations. (Use the three types of symmetry of an equation to sketch its graph.). **4.5** Partial fraction use polynomial long division	7.5 Examples 1,2 ,3 P 386-388. Problems: (6-20) P 391, 392. 4.5 Examples 1,2,3,4&5 P 212-215. **Supplementary Material** Problems 1,4 ,12, 15 & 39-44 P 216.**Supplementary Material**
Week 8 (25/10/20– 29/10/20)	**Statistics** **1.** Inferential Statistics, Summarize data into tables and simple graphs (bar charts, histogram, and pie chart)., **2.** Introduction to Descriptive statistics, mean, median, mode and midrange. **Probability** **1.** Introduction to Probability, compute the probability of simple events using tree diagrams.	**Supplementary Material** **Supplementary Material** **Supplementary Material**
Week 9 (01/11/20– 05/11/20)	**2.** Use formulas for permutations and combinations **Trigonometric Functions** **1.** Define and solve different trigonometric functions, and express them graphically (sin, cos).	**Supplementary Material** **Supplementary Material** **Quiz-2 10% (05/11/2020)**
Week 10 (08/11/20– 12/11/20)	**Continue** : **Trigonometric Functions** **2.** Define and apply the rules, **identities** (Pythagorean, quotient, Co-function, sum and product, supplementary angle, negative angles, addition and subtraction angles, half and double angles), and how to prove some of trigonometric identities.	**Supplementary Material**
Week 11 (15/11/20– 19/11/20)	**3.** Use the law of sines and cosines to solve a triangle and real-life problems.	**Supplementary Material**
Week 12 (21/11/20– 24/11/20)	**Final Exam Week & Marking**	**Final Exam 40 % + Exit Exam 50 %**
Week 13 (29/11/20– 01/12/20)	**Moderation &Finalizing Grades**	