FACULTY FULL NAME:
POSITION:

Personal Data

Nationality | Saudi Arabia

Department | Mathematics

Official Iau Email | ralkhal@iau.edu.sa

Office Phone No. |37022

Language Proficiency

Language	Read	Write	Speak
Arabic	√	√	√
English	√	√	√

Academic Qualifications (Beginning with the most recent)

Date	Academic Degree	Place of Issue	Address
1430	Phd	University of Dammam	Dammam
1422	Master	University of Dammam	Dammam
1417	Bachelor	University of Dammam	Dammam

PhD, Master or Fellowship Research Title: (Academic Honors or Distinctions)

PhD	A study on some subclasses of harmonic univalent functions
Master	A study on some subclasses of starlike univalent functions

Administrative Positions Held: (Beginning with the most recent)

Administrative Position	Office	Date
Vice dean	for academic development (2-years)	1433-1435H
Head	science education unit	1432-1433H

Scientific Achievements

Published Refereed Scientific Researches
(In Chronological Order Beginning with the Most Recent)

#	Name of Investigator(s)	Research Title	Publisher and Date of Publication
1	Debajyoti Choudhuri, Rana Alkhal & Kamel Saoudi	Existence of solution for a nonlocal elliptic problem with a Robin-type data	Complex Variables and Elliptic Equations(2024)
2	R Al-Khal, K Al-Shaqsi	Classes of harmonic univalent functions convex in one direction	Journal of Physics: Conference Series (2018)
3	K. Al-Shaqsi, R. Al-Khal	Polyharmonic functions with negative coefficients	Journal of mathematics and computer science (2017)
4	R. A. AL-Khal	On classes of harmonic univalent functions defined by fractional differential operator, 43(2013),85-96	JNANABHA journal (2013)
5	R. A. AL-Khal	On Certain Classes of Meromorphic Harmonic Functions Definedby Dziok- Srivastava operator,.75, No2(2013),233-244.	Far East Journal of Mathematical Sciences (2013)
6	R. A. AL-Khal	Goodman-Ronning-type harmonic univalent functions based on Dziok-Srivastava operator, 5, No8(2011),351-357.	Applied mathematical science (2011)
7	R. A. AL-Khal	Multiplier family of harmonic univalent functions, No. 215, Issue 6, 15 (2009), 2238-2242	Appl. Math. and Comp (2009)
8	R. A. AL-Khal and H. A., AL-Kharsani	On some subclasses of harmonic functions defined by fractional calculus, (2008), Article ID 576571	Int. J. Math. Math. Sci (2008)
9	R. A. AL-Khal and H. A., AL-Kharsani	Salagean-type harmonic univalent functions with respect to symmetric points ,No.1, Paper No 6, (2007)	Aust. J. Math. Anal. Appl (2007)
10	R. A. AL-Khal and H. A., AL-Kharsani	Generalized integral operator and univalent function, No.15, (2007), 709-718.	Int. J. Math. Anal (2007)
11	H. A., AL-Kharsani and R. A. AL-Khal	Univalent harmonic functions, No 2, Paper No.59, (2007)	JIPAM. J. Inequal. Pure Appl. Math (2007)
12	H. A., AL-Kharsani and R. A. AL-Khal	On neighborhoods of strongly starlike functions of order α and type β with respect to symmetric points, No.4, (2006).	Bulletin of institute of mathematics, Academia Sinica (2006)
13	R. A. AL-Khal and H. A., AL-Kharsani	Harmonic hypergeometric functions, No. 3, (2005), 273-283.	Tamkang J. Math. (2006)
14	H. A., AL-Kharsani and R. A. AL-Khal	On a class of bounded univalent functions,No.4, (2005) , 487-946.	Soochow J. Math. (2005)
15	H. A., AL-Kharsani and R. A. AL-Khal	On the derivatives of a family of analytic functions, vol.XXXV.1-17, (2003).	Rend.Istit.Mat.Univ.Trieste. (2003).
16	H. A., AL-Kharsani and R. A. AL-Khal		Journal of natural geometry ,(2001)

		Strongly starlike functions, vol. 20,(2001), 119-138.	

Scientific Research Papers Presented to Refereed Specialized Scientific Conferences

#	Name of Investigator(s)	Research Title	Conference and Publication Date
1	R. A. AL-Khal	On Classes of Harmonic Univalent Functions Defined by Fractional Differential Operator	The Third Conference on Mathematical Sciences CMS'2011

Contribution to Scientific Conferences and Symposia

#	Conference Title	Place and Date of the Conference	Extent of Contribution
1	Third International Conference on Quality Assurance in Postsecondary Education. Organized by the Ministry of Higher Education and the National Commission for Academic Accreditation & Assessment. . Dammam, Saudi Arabia./ 27-29 April, 2013	Dammam, Saudi Arabia./ 27-29 April, 2013	attendance
2	The Third Conference on Mathematical Sciences CMS'2011	Jordan - Zarqa university	Attendance with a scientific contribution

Membership of Scientific and Professional Societies and Organizations

- Head of science education unit
- Class schedule committee at mathematics department
- Graduate Studies committee at mathematics department
- Academic Advising committee at mathematics department
- Transcripts committee at mathematics department
- Library committee at mathematics department

Teaching Activities

Undergraduate

#	Course/Rotation Title	No./Code	Extent of Contribution (no. of lectures/Tutorials. Or labs, Clinics)
1	Real analysis1	MATH- 403	teaching
2	Calculus1	MATH- 201	teaching
3	Foundation of mathematics	MATH-206	teaching
4	General Mathematics	MATH-101N	teaching

5	Complex Analysis	MATH501	teaching
6	Calculus(1) (2)(3) (4)		teaching
7	Logic and Methods of Proof		teaching
8	Set Theory		teaching
9	Principles of Algebra		teaching
10	Group Theory	MATH201	teaching
11	Functions of a complex variable	MATH203	teaching
12	Elements of group theory for physics	MATH301	teaching
13	Ordinary Differential Equations		teaching

Brief Description of Postgraduate Courses Taught: (Course Title – Code: Description)

1	**Real analysis1:** Introduce the topological and algebraic properties of the real numbers space, especially the completeness and ordering property and to equip the student with necessary knowledge and skills to deal with analysis problems involving notions like sequences and continuity
2	**Foundation of mathematics** Logic and Methods of Proof Introduction to logic, strategies of proof, Sets, relations, functions, finite and infinite sets
3	**General Mathematics** Real numbers and their properties . factoring polynomials , simplifying rational expressions and radical expressions Solving Linear , quadratic , absolute value and auther types of equations with applications in modelling Inequalities and absolute value inequalities Equations of line , Graphs of basic function , Graphing techniques, Functions operation and composition Inverse, exponential and logarithmic functions Solving exponential and logarithmic equations Angles, evaluating trigonometric and circular functions, solving right triangles Fundamental , sum , difference and double angle , trigonometric identities, Verifying trigonometric identities, Inverse circular functions ,Parabolas , Ellipses and Hyperbolas
4	**Complex Analysis** Complex numbers, Cartesian and polar representation of complex numbers, powers and roots of complex numbers. Limits and continuity of a complex function. Analytic functions, Cauchy-Riemann equations, harmonic functions. Exponential, trigonometric, hyperbolic functions and logarithmic functions. Complex integration, contour integrals, Cauchy's theorem, Cauchy's formula. Series representation of analytic functions, Taylor and Laurent series, Zeros and singularities. Residue theory. Applications to real and improper integrals. The conformal mappings.
5	**Calculus(1)** Limits and continuity of function of a single variable. Differentiation, differentiation rules, derivative of trigonometric functions, the chain rule, implicit differentiation. Differentiation of inverse functions and logarithms. Application of derivative, the Mean Value Theorem, monotonic functions, concavity and curve sketching. Indeterminate forms. Applied optimization, antiderivative.
6	**Logic and Methods of Proof** Introduction to logic, strategies of proof, Sets, relations, functions, finite and infinite sets
7	**Set Theory** Introduction to logic, strategies of proof, Sets, relations, functions, finite and infinite sets
8	**Principles of Algebra** Binary operations, groups, subgroups ,

	cyclic groups ,groups of permutations and Cayley's theorem,alternating groups , cosets and Lagrange theorem,direct product and finitely generated abelian groups,isomorphism theorems.
9	Group Theory
10	Functions of a complex variable
11	Elements of group theory for physics
12	Ordinary Differential Equations Introduction to ordinary differential equations (classification and creation).ODEs of first order. ODEs of second order: general solution of linear equations of second order, differential equations with constant coefficients, method of variation of constants, method of undetermined coefficients. ODEs of higher orders: reduction of order method, Cauchy Euler equation. Series solutions of linear equations. Linear systems of differential equations. Applications of ordinary differential equations. Solution of ODEs mathematically and graphically using computer packages.
13	Calculus (2) Definite integrals of functions of a single variable. Fundamental Theorem of Calculus. Indefinite integrals. Applications of the definite integral to area, volume, arc length and surface of revolution. Integral of trigonometric and hyperbolic functions and their inverses, techniques of integrations, improper integrals. Infinite sequences and series, converging tests, alternating series, absolute and conditional convergence. Power series, Taylor and Maclaurin series, convergence of Taylor series. The Binomial Series and applications of Taylor series.
14	Calculus (3) Vectors in 3-dimensional space: geometry of the three dimensional space and vectors, parametric equations of lines and planes in space, quadratic surfaces. Partial derivative: domain and the range of functions of several variables , limit and continuity of function of several variable, partial derivatives, the chain rule, directional derivatives and gradient , the extreme values of function of several variables, Lagrange multipliers Multiple integral: double integral, Polar coordinates, polar curves, double integrals and area in polar coordinates , triple integral, triple integral in cylindrical and spherical coordinates Line integral: line integral on parameterized two or three dimensional curve of scalar functions and vector valued functions. Green's theorems

Course Coordination

#	Course Title and Code	Coordination	Co-coordination	Undergrad.	Postgrad.	From	To
	Real analysis1	Rana Alkhal		√			
	Calculus 1/ MATH 201	Rana Alkhal		√			
	Foundation of mathematics/ math 206	Rana Alkhal		√			

Student Academic Supervision and Mentoring

#	Level	Number of Students	From	To
	All		1426H	Now

Administrative Responsibilities, Committee and Community Service (Beginning with the most recent)

Administrative Responsibilities

#	From	To	Position	Organization
	1437H	Now	Head of committee of Graduate Studies- mathematics department	COLLEGE OF SCIENCES
	1433H	1435H	Vice dean for academic development (2-years)	UNIVERSITY OF DAMMAM
	1432H	1433H	Head of science education unit	COLLEGE OF SCIENCES
	1430H	1433H	Class schedule committee	COLLEGE OF SCIENCES
	1425H	1427H	Head of Class schedule committee at mathematics department	COLLEGE OF SCIENCES

Committee Membership

#	From	To	Position	Organization
	1437	Now	Head of committee of Graduate Studies- mathematics department	COLLEGE OF SCIENCES
	1437	Now	scientific committee- mathematics department	COLLEGE OF SCIENCES
	1435H	1437	Comprehensive development project for Studies, Development and Community Service office	UNIVERSITY OF DAMMAM
	1435H	1437H	committee of Graduate Studies- mathematics department	COLLEGE OF SCIENCES
	1425H	1427H	Class schedule committee at mathematics department	COLLEGE OF SCIENCES
	1426H	Now	Academic Advising committee at mathematics department	COLLEGE OF SCIENCES
	1424H		Library committee at mathematics department	COLLEGE OF SCIENCES

Volunteer Work

#	From	To	Type of Volunteer	Organization
	1437H		organize a workshop for graduates of the Department of Mathematics	BAKER HUGHES
	2013		Referee	journal 'Le Matematiche' Journal of pure and applied mathematics and information science/University of Catania

1432H		Referee	Projects Olympiad National Science Innovation
1429H	1430H	Training	secondary school teachers within the program of Saudi Aramco for training teachers

Personal Key Competencies and Skills: (Computer, Information technology, technical, etc.)

	Adobe system
	Scientific work place
	"Mathematica" program
	"Matlap" program
	Teaching different subjects of mathematics for other majors.
	Banners and brochures design.

Last Update

6./11/2022