



# UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

Mathematics Department

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## Undergraduate Programme in Mathematics

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## STAFF HANDBOOK

Name	Salmah		
Post	Control Theory, Game Theory, Optimization		
Academic Career		Institution	Year
	Initial Academic Appointment	Universitas Gadjah Mada	1991
	Post Doctoral	-	-
	Doctoral Degree	Universitas Gadjah Mada	2006
	Master Degree	Institut Teknologi Bandung	1995
	Undergraduate Degree	Universitas Gadjah Mada	1989
Employment		Employer	Period
	Asisten Ahli Madya	Universitas Gadjah Mada	01-10-1996
	Instructor (Asisten Ahli)	Universitas Gadjah Mada	01-10-1999
	Assistant Professor (Lektor)	Universitas Gadjah Mada	01-02-2002
	Associate Professor (Lektor Kepala)	Universitas Gadjah Mada	01-05-2007
	Full Professor	-	-
Research and development projects over the last 5 years	<p><i>Name of project or research focus</i> : Distributed Model Predictive Control for Traffic Systems with Dynamic Game Approach</p> <p><i>Period and any other information</i> : 2016 (KLN RISTEK DIKTI, Principal Investigator, second year)</p> <p><i>Partners, if applicable</i> : Tilburg University and Delft University, Netherland</p> <p><i>Amount of financing</i> : 175,000,000 Rupiah + 4,000 Euro</p> <p><i>Name of project or research focus</i> : Desain Kendali Sistem Irigasi dengan Pendekatan Permainan Dinamis Kooperatif</p> <p><i>Period and any other information</i> : 2016 (PUPT RISTEK DIKTI, Principal investigator, first year)</p> <p><i>Partners, if applicable</i> : -</p> <p><i>Amount of financing</i> : 180,000,000 Rupiah</p>		

<p><i>Name of project or research focus</i> : Metode Numerik Solusi Persamaan Aljabar Riccati Permainan Dinamis Linear Kuadratis</p> <p><i>Period and any other information</i> : 2016 (PMDSU RISTEK DIKTI, Principal Investigator, first year)</p> <p><i>Partners, if applicable</i> : Tilburg University, Netherland</p> <p><i>Amount of financing</i> : 60,000,000 Rupiah</p>
<p><i>Name of project or research focus</i> : Metode Newton dan modifikasinya untuk Mencari Solusi Persamaan Aljabar Riccati Permainan Dinamis Linear Kuadratis Lingkaran Terbuka dan Lingkaran Tertutup</p> <p><i>Period and any other information</i> : 2016 (Research Grant Jurusan Matematika UGM, Principal Investigator)</p> <p><i>Partners, if applicable</i> : -</p> <p><i>Amount of financing</i> : 15,000,000 Rupiah</p>
<p><i>Name of project or research focus</i> : Distributed Model Predictive Control for Traffic Systems with Dynamic Game Approach</p> <p><i>Period and any other information</i> : 2015 (KLN DIKTI, Principal Investigator, first year)</p> <p><i>Partners, if applicable</i> : Tilburg University and Delft University, Netherland</p> <p><i>Amount of financing</i> : 150,000,000 Rupiah + 4,000 Euro</p>
<p><i>Name of project or research focus</i> : Rancang-Bangun Satelit Nano Universitas Gadjah Mada UGMSAT-1</p> <p><i>Period and any other information</i> : 2015 (PUPT DIKTI, Research Fellow)</p> <p><i>Partners, if applicable</i> : -</p> <p><i>Amount of financing</i> : 199,912,500 Rupiah</p>
<p><i>Name of project or research focus</i> : Permainan Dinamis Linear Kuadratis Sistem Deskriptor Kooperatif</p> <p><i>Period and any other information</i> : 2015 (Research Grant Jurusan Matematika, Principal Investigator)</p> <p><i>Partners, if applicable</i> : -</p> <p><i>Amount of financing</i> : 10,000,000 Rupiah</p>
<p><i>Name of project or research focus</i> : Penyelesaian Optimal Nash Permainan Dinamis Linear Kuadratis Sistem Deskriptor Umpan Balik</p> <p><i>Period and any other information</i> : 2014 (Research Grant Jurusan Matematika, Principal Investigator)</p> <p><i>Partners, if applicable</i> : -</p> <p><i>Amount of financing</i> : 10,000,000 Rupiah</p>
<p><i>Name of project or research focus</i> : Pendekatan Permainan Kooperatif untuk Jaringan Ekonomi</p> <p><i>Period and any other information</i> : 2013 (Insentif Penelitian Mahasiswa BOPTN Dikti, Principal Investigator)</p>

	<i>Partners, if applicable</i> : - <i>Amount of financing</i> : 7,500,000 Rupiah  <i>Name of project or research focus</i> : Penyelesaian Optimal Nash Permainan Dinamis Linear Kuadratis Sistem Deskriptor dengan Matrisk Fungsi Objektif Non Blok Diagonal <i>Period and any other information</i> : 2013 (Research Grant Jurusan Matematika, Principal Investigator) <i>Partners, if applicable</i> : - <i>Amount of financing</i> : 10,000,000 Rupiah  <i>Name of project or research focus</i> : Permainan Dinamis Linear Kuadratis Stackelberg Sistem Deskriptor <i>Period and any other information</i> : 2012 (Research Grant Jurusan Matematika, Principal Investigator) <i>Partners, if applicable</i> : - <i>Amount of financing</i> : 5,000,000 Rupiah  <i>Name of project or research focus</i> : Hibrid Modeling and Control for Intelligent Unmanned Aerial Vehicle <i>Period and any other information</i> : 2015 (KLN DIK'TI, Principal Investigator, third year) <i>Partners, if applicable</i> : Konkuk University, Korea <i>Amount of financing</i> : 162500000 Rupiah + 2,000,000 KRW  <i>Name of project or research focus</i> : Hibrid Modeling and Control for Intelligent Unmanned Aerial Vehicle <i>Period and any other information</i> : 2011 (KLN DIK'TI, Principal Investigator, second year) <i>Partners, if applicable</i> : Konkuk University, Korea <i>Amount of financing</i> : 142,500,000 Rupiah + 2,000,000 KRW	
Industry collaborations over the last 5 years	Project title : -  Partners: -	
Patents and proprietary rights	Title	Year
	-	-
Important publications over the last 5 years	Selected recent publications form a total of approx.: 12	
	<i>Salmah, Feedback Zero-Sum Linear Quadratic Dynamic Game for Descriptor System, WSEAS Transactions on Systems and Control, Greece, Volume 10, 2015, pp 476-483</i>	
	<i>Muhammad Wakhid Musthofa, Salmah, Jacob Engwerda, Ari Suparwanto, Journal Optimization Theory and Applications (JOTA) Springer, United States, Volume 168, Issue 3, 2016, pp 1046-1064</i>	

	<i>Didik Khusnul Arif, Widodo, Salmah, Erna Apriliani, Construction of the Kalman Filter Algorithm on the Model Reduction, International Journal of Control and Automation, Korea, Vol.7, N.9, 2014, pp. 257-270.</i>		
	<i>Salmah, Nash Equilibrium of Discrete Time Two-Person Game for Descriptor Systems, International Journal of Applied Mathematics and Statistics (IJAMAS), CESER Publications, India, Vol.35, Issue No. 5, 2013, pp 20 – 28.</i>		
	<i>Salmah, Solikhatun, Noorma Yulia Megawati, Endra Joelianto, Agus Budiyo, Control of Autonomous Helicopter Models with Robust H<sub>2</sub>-type Switched Linear Controller, International Journal of Applied Mathematics and Statistics (IJAMAS), CESER Publications, India, Vol.35, Issue No. 5, 2013, pp 137 - 148</i>		
	<i>Muhammad Wakhid Musthofa, Salmah, J.C. Engwerda, and Ari Suparwanto, The Open-Loop Zero-Sum Linear Quadratic Impulse Free Descriptor Differential game, International Journal of Applied Mathematics and Statistics (IJAMAS), CESER Publications, India, Vol.35, Issue No. 5, 2013, pp 29 – 44.</i>		
	<i>J.C. Engwerda, Salmah, Necessary and Sufficient Conditions for Feedback Nash Equilibria for the Affine-Quadratic Differential Game, Journal Optimization Theory and Applications (JOTA) Springer, United States, Vol. 157, No.1, April, 2013, pp 552-563.</i>		
	<i>Muhammad Wakhid Musthofa, Salmah, Jacob C. Engwerda, Ari Suparwanto, Feedback saddle point equilibria for soft-constrained zero-sum linear quadratic descriptor differential game, Archives of Control Sciences (ACS), Poland, Volume 23 (LIX), 2013, No.4, pp 473-493.</i>		
	<i>J.C. Engwerda, Salmah, Feedback Nash equilibria for linear quadratic descriptor differential games, Automatica Elsevier, United Kingdom, No. 48, 2012, pp 625-631.</i>		
	<i>J.C. Engwerda, O. Boldea, T. Michalak, J. Plasmans, Salmah, A Simulation Study of an ASEAN Monetary Union, Economic Modelling Elsevier, United Kingdom, Volume 29, 2012, pp 1870-1890</i>		
	<i>Noorma Yulia Megawati, Salmah, Indah Emilia Wijayanti, Endra Joelianto, Safety Analysis of Linear Systems with Complex Eigenvalues using SOS, International Journal of Imaging and Robotics (IJIR), CESER Publications, India, Volume 10, Issue no.2, 2013, pp 105-120.</i>		
	<i>J.C.Engwerda, Salmah, Indah Emilia Wijayanti, The (multi-player) linear quadratic state feedback control problem for index one descriptor systems, Journal of The Franklin Institute, United Kingdom, Volume 348, Issue 10, 2011, pp 2923-2941</i>		
Activities in specialist bodies over the last 5 years (Membership without a specific role need not be mentioned)	Organization	Role	Period
	-	-	-