## **CURRICULUM VITAE**

#### Proposed role in the project:

- 1. Family name: EISSA
- 2. First names: Mustafa Hassan Mohamed
- 3. Date of birth: 5/9/1946
- 4. Nationality: Egyptian
- 5. Civil status: Married & two children (Physician & Dentist).

6. Education: PhD in Mechanical Engineering, Nottingham University, U.K. 1982

7. Present Post: Professor of Vibration, Department of Physics and Engineering Mathematics, Faculty of Electronic Engineering, Menoufeya University, ARE.

Institution [Date from - Date to]	Degree(s) or Diploma(s) obtained:		
Faculty of Eng., Cairo University 1964-1969	B. Sc. Degree of Mech. Eng., Production and Design.		
Faculty of Eng., Cairo University 1973-1976	M. Sc. Degree of Mech. Eng. Production and Design Thesis title "Quality Control For Electronic Industries"		
A Scholarship member studying for Ph D, Faculty of Engineering, Mechanical Engineering Department, Nottingham University, United Kingdom,	October 1977 to May 1982. Thesis Title "Stress Analysis of Keyed Connections".		

# **8.** Language skills: Indicate competence on a scale of 1 to 5 (1 - excellent; 5 - basic)

Language	Reading	Speaking	Writing
Arabic	1	1	1
English	1	1	1

#### 9. Membership of professional bodies:

9-1- Board of Managers, Faculty Productive workshop.

9-2- Faculty Consultant Committee

- 9-3- Member of SEM, USA.
- 9-4- Member of BSSM, UK.
- 9-5- Referee in Physica A journal..
- 9-6- Referee in Acta Mechanica journal.

### 9-7 Referee in communications and nonlinear mechanics journal.

**10.Other skills:** Computer Programming, Windows, Excel, ... etc.

11. **Present position:** Professor of Mech. Eng., Faculty of Electronic Eng., Menufia University, Egypt

**12. Years within the firm:** 40 years from working as a demonstrator on January 1970 up to now as a Professor of Vibration.

**13. Key qualifications:** I have been teaching the following subjects for several years (Lectures, workshop and laboratories):

- 1- Quality control and quality assurance.(post- and undergraduate)
- 2- Sensors and measurements. (Post- and undergraduate)
- 3- Production engineering.
- 4- Advanced Production Engineering.
- 5- Workshop training.
- 6- Non-conventional machining.
- 7- Pneumatic, electro-pneumatic control and applications. (Post and undergraduate)
- 8- Hydraulic, electro-hydraulic control and applications. (Post and undergraduate).
- 9- Strength of materials and stress analysis (basic and advanced).
- 10-Mechanical vibration and control. (Post graduate)
- 11-Special topics in engineering mathematics (M.Sc. and Diploma levels)
- 12-Applied mechanics.
- 13-Applied mathematics. (Post and undergraduate)
- 14-Descriptive geometry.
- 15-Engineering drawing and Machine drawing.
- 16-B.Sc Project and diploma project.
- 17-Power derives (Electrical, hydraulic and pneumatic motors).
- 18-Electrical Engineering (basic training course).
- 19-Mechanics of machines.
- 20-Mechatronics.
- 21-Logic control.
- 22-Modelling and Simulation.

Also I have been supervising summer training in the Faculty of Electronic Engineering, since 1982 up to now, and in the Industrial teaching college for 10 years,

Besides those training courses, I have finished the supervision of 9 PhD degrees and another 2 M.Sc degrees. I am currently supervising 3 **PhD student** <u>as the principal</u> <u>supervisor</u>.

## 14. Specific experience in the region:

Country	Date from - Date to			
Faculty of Elect.	1970-1977			
Engineering, Men.	1982-1988			
University, A.R.E	1995 up to now			
Faculty of Eng.,	1977-1982			
Dept. of Mech. Eng.				
Nottingham Univ.,				
U.K.				
Saudi Arabia	1988-1995, Burayda Technical College as			
(KSA)	Assoc. Professor, Mech. Eng. Dept.			
Information	rmation 2001- up to now, teaching for the			
Technology	chnology Mechatronics post-graduate students. This			
Institute (EI-Haram)	itute (EI-Haram) study leads to M.Sc in the field.			
Misr University for	2006- up to now, teaching for Mechatronics			
Science and	students and Supervised B.Sc. project for			
Technology	Computer software and Engineering and			
	Mechatronics students.			

## 15. Professional experience

Date from - Date to	Location	Company	Position	Description
1970-1977	ARE	Menufia Univ.	Demonstrator and Lecturer assistant	Assisting in teaching.
1977-1982	U.K	Nottingham University	Ph.D. Student and teaching Strength of Material Lab.	Teaching strength of material laboratory.
1982-1988	ARE	Menufia Univ.	Staff Member	Teaching mechanics, Production engineering, applied mathematics, measurement and instrumentations, Organization, Machine drawing, Engineering drawing, B.Sc Projects, Supervising M.Sc and PhD students.
1988-1995	KSA	Buraydah Tech. College	Staff member and head of the Mechanical Engineering Department.	Teaching Hydraulic and pneumatic control, non- conventional machining, different levels of production engineering, power derives
1995-up to now	ARE	1.Menufeya Univ. 2.Cairo Industrial education college 3.Information Technology Institute (ITI)	Staff Member (Now a Professor of vibrations)	electrical engineering, engineering and mechanical drawing, Final year project. For ITI students I am teaching Sensors and measurements, Hydraulic and pneumatic control, project for M.Sc. mechatronics students. Mechanics of machines, hydraulic and pneumatic control, stress analysis, final year project and Mechatronics.

\*\*\*I have been a member of the committee who prepared the new training courses for:

a- Faculty of Electronic engineering (3-times).

- b- Buraydah Technical College, KSA.
- c- Information Technology Institute (ITI), Mechatronics training course leading to master degree, A.R.E.
- d- I have been a member of the committee who prepared the new courses for Mechatronics department, Faculty of Engineering, Misr University for Science and Technology.
- e- I have qualified a number of companies to get ISO certificates for example ISO 9001 (Quality management system), ISO 14001 (Environment management system), ISO/TS 16949, OHSAS 18001 (Occupational health and safety assessment system), ISO 22000 (Food management system)...etc., in EGYPT. They are listed below:
- f- I have trained a lot of engineers and technicians to be professional Quality control inspector or Engineer, and to be an internal auditor in the following companies:
  - 1- Olympic Group Companies and Academy.
  - 2- Misr El-Nour for plastics.
  - 3- SIRO Misr Company.
  - 4- Dr. Greich Company.
  - 5- Elsweedy Company for Developed Industries.
  - 6- EI-Helal and EI-Negma companies.
  - 7- Egyptian American Paintings.
  - 8- Misr for Glass Manufacturing.
  - 9- International Company for Developed Industries (ICDI).
  - **10-Pacman Egypt Company.**
  - **11-Neolite Egypt for manufacturing Company.**
  - 12-GAD For Lightening Company.
  - 13-10<sup>th</sup> of Ramadan Company for Electrical Industries.
  - 14-ECICO Egypt Company for electrical appliances..
  - 15-REPACK Company.
  - 16-ICDI (International Company For Developed Industries).
  - 17-Karfour supplying dealers.
- 16. Other relevant information (e.g, Publications)

## A- <u>Published Books:</u>

- 1- Production Engineering (In Arabic).
- 2- Sensors and Measurements (In Arabic).
- 3- Descriptive geometry and Engineering Drawing, parts I &II (In Arabic)
- 4- Differential Equations, theory, applications and solved problems (In Arabic).
- 5- Production Technology (In English).
- 6- Production Engineering (in English)

## B- Books to be published:

- 1- Quality control and quality assurance.
- 2- Production Technology (Conventional and Non-conventional machining).
- 3- Mechanical Vibrations.
- 4- Applied Mechanics.

## **C-Other Publications (papers in International Journals)**

1-**M. Eissa**, "Vibration and Chaos Control in I.C. Engines Subject to Harmonic Torque Via Nonlinear Absorbers", Paper Presented at the International Conference of Mechanical vibrations ISMV2000, 25-28 September, 2000, Islamabad, PAKISTAN.

2- **M. Eissa** and W. A. A. El-Ganaini," Multi-Absorbers for Vibration Control of Non-linear Structures to Harmonic Excitations", Part I, "Response, Stability, Chaos and Effects of Different Parameters", Paper presented at the International Conference of Mechanical Vibrations ISMV2000, 25-28 September, 2000, Islamabad, PAKISTAN.

3- **M. Eissa** and W. A. A. El-Ganaini," Multi-Absorbers for Vibration Control of Non-linear Structures to Harmonic Excitations", Part II, "Simultaneous, Primary, Secondary and Combined Resonance", Paper presented at the International Conference of Mechanical Vibrations ISMV 2000, 25-28 September, 2000, Islamabad, PAKISTAN.

4- **M. Eissa** and H. M. Abdel-Hafez, "Resonance of Non-linear Systems Subjected to Harmonically Modulated Frequency Excitations", Engineering Bulletin, Faculty of Engineering, Alexandria University, 2001.

5- **M. Eissa**, "Vibration Control of Non-linear Mechanical Systems Via Neutralizers," Electronic Engineering Bulletin, No. 18, July 1999, EGYPT.

6- **M. Eissa,** "Dynamics and Resonance of a Non-linear Mechanical Oscillator Subjected to Parametric and External Excitations," Fifth Inter. Con. on Integrated Methods in Science and Engineering, (IMSE), August 1998, Michigan, Tech. University, USA

7- **M. Eissa** and M. M. Kamel, "On the Vibration of Helical Springs," Fifth Inter. Con. on Integrated Methods in Science and Engineering, (IMSE), August 1998, Michigan, Tech. University, USA

8- A. F. El-Bassiouny and **M. Eissa**, "Response of Three-Degree-of-Freedom System With Cubic Non-linearities to Harmonic Excitations," Physica Scripta, Vol. 59, 183-194, 1999, Sweden

9- S. A. El-Serafi, F. Z. El-Halafawy, **M. H. Eissa** and M. M. Kamel," An MSPT of a Parametrically Excited Cantilever Beam," Journal of Computational and Applied Mathematics, 47 (1993) 219-239.

10- F. Z. El-Halafawy, S. A. El-Serafi , **M. H. Eissa** and M. M. Kamel, "The Response and Stability of the Differential Equations of a Parametric Excited Cantilever Beam Due to Single and Multi External Forces", Engineering Bulletin, Ain Shams University, V 28, No. 4, 339-371, 1993.

11- **M. H. Eissa**, F. Z. El-Halafawy, S. A. El-Serafi, and M. M. Kamel, "Simultaneous Combination Response in a Parametrically Excited Cantilever Beam," AMSE Proc., vol. 3, pp. 29-39, 1991 New Orleans, USA.

12- M. M. Kamel, M. **H**. **Eissa**, F. Z. El-Halafawy, and S. A. El-Serafi, "Effects of the Different Parameters on the System Response of Differential Equations of a Parametrically Excited Cantilever Beam," 17th, Inter. Cong. for Statistics, Computer Science, vol. 16, pp. 221-239, 1992, Cairo, EGYPT.

13. M. M. Kamel and **M. Eissa**, "On the Solution of Non-linear Oscillators," Electronic Engineering Bulletin, No. 15, January 1998, EGYPT.

14. **Eissa, M.** and Abdel-hafez, H., "Stability and control of non-linear torsional vibrating system", Bull. Faculty of Engineering, Alexandria Univ. (2002).

15. A. F. El-Bassiouny and **M. Eissa**, "Analytical and numerical solution of non-linear ship rolling motion", Journal of applied mathematics and computation, USA (2002).

16.**Eissa, M.** and et. al ,"Simultaneous resonance of parametrically excited non-linear two-degrees-of-freedom system", Bull. Assiut University 31(1-c), p49-62 (2002).

17.**Eissa, M**., "Elastic stress distribution in solid and hollow keyed shafts", Proc. PEDAC 83, v2, p 720-731, Alexandria, EGYPT (1983).

18. **Eissa, M**., "Elastic stress distributions in side-milled, hollow and solid keyed connections", Proc. 1<sup>st</sup> AME Conference, Tech. Mil. College MDB-5, p45-54, Cairo, EGYPT (1984).

19. **Eissa, M.,** "Elastic stress concentrations in splines", Proc. 11<sup>th</sup> all India Mach. Tool Design and Research Conf., Madras, INDIA (1984).

20. **Eissa, M.,** "Prediction of elastic stresses in keyed connections using transmitted torque distribution", Proc. Intr. AMSE Conf. "Modelling and Simulation", v3.1B, p 86-97, Monastir, TUNISIA (1985).

21. **Eissa, M**., "Effects of hub dimensions on stresses and torque distribution keyed connections", Proc. Intr. AMSE Conf. "Modelling and Simulation", v3.1B, p 75-85, Monastir, TUNISIA (1985).

22. **Eissa, M.** and El-Halafawy, F. Z., "On the solution of the second order non-linear differential equations", Proc. Intr. AMSE Conf. "Modelling and Simulation", v3.1B, p 21-31, Monastir, TUNISIA (1985).

23. **Eissa, M.** and El-Halafawy, F. Z., "Computer calculations for the solution of a non-linear differential equation", Proc. 11<sup>th</sup>, Int. Congress in statistics, Computer Science, Social and Demog. Research, p270-280, Cairo. EGYPT (1986).

24. **Eissa, M.**, "Plastic-elastic strain distributions in axially notched thin plates", Proc. Intr. AMSE Conf. "Modeling and Simulation", v3.1, p 19-32, Sorrento, ITALY (1986).

25. **Eissa, M.**, "Plastic-elastic strain distributions in shouldered plates", Proc. Intr. AMSE Conf. "Modeling and Simulation", v3.1, p 33-42, Sorrento, ITALY (1986).

26. **Eissa, M.** and El-Halafawy, F. Z., "Software of power series solution for non-linear free oscillations", Journal of phys, D; Applied physics, v20, p401-407, ENGLAND (1987).

27. **Eissa, M.** and El-Halafawy, F. Z., "Effects of the different parameters on the solution of the non-linear differential equations", Proc. Intr. AMSE Conf. "Modelling and Simulation", v3.1, p 19-38, Sorrento, ITALY (1986).

29. **Eissa, M.** and El-Halafawy, F. Z., "Software of Frobenius method of non-linear differential equations", Journal of applied mathematical modelling, vII, p229-232, ENGLAND, (1987).

30. **Eissa, M.** and El-Halafawy, F. Z., "On the numerical solution of the non-linear forced oscillations", part I: non-linear damping force, Journal of modelling, simulation and control B, 16(2), p 1-12,(1988).

31. **Eissa, M.** and El-Halafawy, F. Z., "On the numerical solution of the non-linear forced oscillations", part II: non-linear hard or soft spring force, Journal of modelling, simulation and control B, 16(2), p 13-27,(1988).

32. **Eissa, M**. and El-Halafawy, F. Z., "On the numerical solution of the non-linear forced oscillations", part I: severe non-linear spring, Journal of modelling, simulation and control B, 16(2), p 29-40,(1988).

33. **Eissa, M**., El-Halafawy, F. Z., Abdel-Hafez, H and Eissa, H., "On the solution of four terms non-linear differential equations", Proc. Int. AMSE Conf., Modelling and Simulation,v1.3, p35-48, Sorrento, ITALY (1986).

34. **Eissa, M.,** El-Halafawy, F. Z., Abdel-Hafez, H and Eissa, H., "An algorithm for power series solution of non-linear damped forced oscillations", Proc. Int. AMSE Conf., Modelling and Simulation,v1.3, p91-105, Sorrento, ITALY (1986).

35. **Eissa, M.** and Sheha, G., "Elastic stress distribution in multiple pin connectors", Journal of modelling, simulation and control B, p57-64, (1988).

36. **Eissa, M.** and Sheha, G., "Plasto-elastic strain distribution in multiple pin connectors", Proc. Int. AMSE Conf., California, U.S.A (1987).

37. **Eissa, M.** and Sheha, G., "Plastic-elastic strain distribution in v-notched plates", Proc. Int. AMSE Conf., California, U.S.A (1987).

38. Eissa, M. "Bending and torsional oscillations of a single story structure", Proc. Int. AMSE 10- 1985.

39. A. F. El-Bassiouny and **M. Eissa**, "Resonance of non-linear systems subjected to multiparametrically Excited Structures: (comparison between two methods, response and stability)", Physica Scripta, Vol. 70, n 2/3, pp101, (2004).

40- **Eissa, M.**, El-Ganaini,W and Hamed, Y. "Saturation, stability and resonance of non-linear system" Physica A 356 (2005) 341-358.

41- **Eissa, M.**, El-Ganaini,W and Hamed, Y "Optimum working conditions of a non-linear SDOF system to harmonic and multi-parametric excitations *Sci. Bull. Fac. Eng. Ain Shams Univ., Part III: Mechanical Engineering and Physics and Mathematics. Vol.* 40 No. 1, March 31, 2005.

42- Eissa, M., El-Ganaini,W and Hamed, Y "On the saturation phenomena and resonance of nonlinear differential equations" Menoufia Journal of Electronic Engineering Research MJEER, Vol. 15, No. 1, January 2005, pp 73-84.

43- **Eissa, M.** et. al "Stability and primary simultaneous resonance of harmonically excited nonlinear spring pendulum system" Applied mathematics and computation 145 (2003) 421-442.

44- **Eissa, M**. **et. al** Simultaneous resonance of non-linear spring pendulum system subjected to multi-excitation", Sci. Bull. Fac. Eng. Ain Shams Univ., Part III: Mechanical Engineering and Physics and Mathematics. December (2002), pp 651-679.

45- **Eissa**, **M**. and El-Basiouny, A "Dynamics of a single-degree-of-freedom structure with quadratic, cubic and quartic non-linearities to a harmonic resonance" Applied mathematics and computation 139 (2003) 1-12.

46. **Eissa, M**, et. al.,"1:3 internal resonance active absorber for non-linear vibrating system", Institute of Mathematics and computer Science, to appear..

47. **Eissa, M**, et. al., "On passive and active control of vibrating system", International Journal of applied Mathematics, Vol. 18 No. 4 (2005), pp. 515-537.

48. **Eissa, M**, et. al. ,"1:4 Internal resonance active absorber for non-linear vibrating system", International Journal of Applied Mathematics, to appear..

49. **Eissa, M**, et. al. ,"1:2:4 Internal resonance active absorber for non-linear vibrating system", Submitted for publication.

50. **Eissa**, M. et. al. "Comparison between passive and active control of a non-linear dynamical system", Japan Journal of Industrial and Applied Mathematics, Vol. 23, No. 2 June (2006).

51 **Eissa**, M. et. al. "Dynamic Behavior of an AMB/Supported Rotor Subject to Harmonic Excitation", Applied mathematical modeling and simulation (2007)

52.**Eissa, M.** et. al. "Dynamic Behavior of an AMB/Supported Rotor Subject to Parametric Excitation", Journal of vibration and acoustics, Vol. 128, October (2006), pp. 646-652.

53. **Eissa, M.** and El-Sayed, M. "Vibration Reduction of a 3 DOF Non-linear Spring Pendulum", Accepted for Publication by Journal of Communications in Non-linear Science and Numerical Simulation.

54. **Eissa, M**. et. al. "Active Control of an Aircraft Tail Subject to Harmonic excitation", Acta Mech Sin (2007) 23:451-462.

55. **Eissa, M**. and El-Sayed, M., "Vibration Suppression of Non-linear Pendulum", Submitted for Publication in Physica A

56. **Eissa, M.** and El-Sayed, M., "Vibration Suppression of Non-linear Spring Pendulum", Submitted for Publication in Physica A.

57. **Eissa, M.** and El-Sayed, M., "A comparison between active and passive vibration control of non-linear simple pendulum", Part I: Transversally tuned absorber and negative  $G \emptyset^2$ . Mathematical computational Applications, Vol. 11, No. 2, pp. 137-149, (2006)

58. **Eissa, M.** and El-Sayed, M., "A comparison between active and passive vibration control of non-linear simple pendulum", Part I: Longitudinal tuned absorber and negative  $G O^2$ . Mathematical computational Applications, Vol. 11, No. 2, pp. 151-162, (2006)

59. **Eissa. M.** "Quality Control for electronic Industries" M. Sc thesis, Faculty of Engineering, Cairo University, 1976.

60. **Eissa. M.** "Stress Analysis of Keyed Connections", Ph. D Thesis, Nottingham University, U.K. , 1982.

61-66. **Six papers**, which extracted from PhD thesis are published three in Journal of Institution of Mech. Engineering (U.K), and other three in Journal of Experimental Mechanics (USA).

67. Eissa, M., et. al, "Vibration reduction Via 1:2 internal resonance active absorber", Sci.. Bull, Faculty of Engng. Ain Shams Univ., September (2006).

68. Eissa, M., Hegazy, U. H., and Amer, Y. A., "A Time-Varying Stiffness Rotor Active Magnetic Bearings Under Combined Resonance", Journal of Applied Mechanics, Volume 75 (2008).

69- Eissa, et. al. "Vibration reduction of a nonlinear spring pendulum under multi parametric excitations via a longitudinal absorber", Physica Scripta, Vol. 80, (12pp) 025005, 2009.

70- Eissa, et. al. "Vibration reduction of multi-parametric excited spring pendulum via a transversally tuned absorber", Nonlinear Dynamics, Vol 61, pp 109-121, 2010.

71- - Eissa, et. al. "Vibration reduction of a nonlinear spring pendulum under multi external and parametric excitations via a longitudinal absorber", Meccanica (accepted for publications) DOI 10.1007/s11012-010-9311-2.

72- Eissa, et. al. "Vibration reduction of a pitch-roll ship model with longitudinal and transverse absorbers under multi excitations", Mathematical and Computer modeling, Vol. 52 pp 1877-1898, 2010.

73- Eissa, et. al. "Vibration suppression of a 4-DOF nonlinear spring pendulum via a longitudinal and a transverse absorbers', Journal of Applied Mechanics (under review).

74- - Eissa, et. al. "Vibration suppression of nonlinear spring pendulum to multi external and parametric excitations", Archive of Applied Mechanics.

75. Eissa, M. et. al , Positive position feedback (PPF) controller for suppression of nonlinear system vibration, Nonlinear Dyn 72 (2013) 517–537.

76. Eissa, M. et. al. , Nonlinear oscillations of rotor active magnetic bearings system, Nonlinear Dyn 74 (2013) 1–20.

78. Eissa, M. et. al., Nonlinear time delay saturation-based controller for suppression of nonlinear beam vibrations, Applied Mathematical Modelling 37 (2013) 8846–8864.

79 Eissa, M. et. al, Saturation-Based Active Controller for Vibration Suppression of a Four-Degree-of-Freedom Rotor-AMB System, Nonlinear Dyn, DOI 10.1007/s11071-013-1166. 80 Eissa M. et al, Active vibration control of a nonlinear magnetic levitation system via Nonlinear Saturation Controller (NSC), Nonlinear Dynamics (accepted)

81 Eissa M. et al, Vibration reduction of a non-linear magnetic levitation system at simultaneous resonance, Applied Mathematical Modelling (under review)

82 Eissa M. et al, On controlling the response of primary and parametric resonances of a nonlinear magnetic levitation system, Meccanica (under review)

83 Eissa M. et al, Effects of delayed time active controller on the vibration of a nonlinear magnetic levitation system to multi excitations, Journal of Vibration and Control (under review)

[48] M. Eissa, H. A. El-Gohary and W. A. A. El-Ganaini, Vibration Suppression a Ship roll motion to Multi-External Excitations. Submitted for publication.

[49] M. Eissa, W. A. A. El-Ganaini and H. A. El-Gohary, Time Delay Negative velocity Feedback Controller for Vibration Suppression of a non linear spring pendulum to Multi–Parametric Excitations Submitted for publication.

[50] M. Eissa, H. A. El-Gohary and W. A. A. El-Ganaini, Vibration Reduction of a nonlinear Spring Pendulum under Mixed Excitations via Time delay Technique. Submitted for publication.

[51] W. A. A. El-Ganaini, H. A. El-Gohary and M. Eissa, Vibration suppression of ship roll motion to Multi-Tuned Excitations. Submitted for publication.

[52] M. Eissa, W. A. A. El-Ganaini and H. A. El-Gohary, Vibration Reduction of a pitch-roll ship to mixed Excitations Via Time-delay Technique. Submitted for publication.

[53] M. Eissa, H. A. El-Gohary and W. A. A. El-Ganaini, Vibration Reduction of a nonlinear spring pendulum to mixed Excitations. Submitted for publication.

[54] M. Eissa, W. A. A. El-Ganaini and H. A. El-Gohary, Vibration Reduction of a Non-linear spring pendulum under Multi-external, Multi-parametric and multi-tuned Excitations via time delay. Submitted for publication.

It is worth to mention that I have participated in many national conferences and too many international conferences in USA, Italy, Tunisia, and Pakistan. ... and others.