CURRICULUM VITAE

Prof. GALAL ALI HASSAAN

NAME: **Prof. GALAL ALI HASSAAN**
B.Sc. (Cairo University), M.Sc. (Cairo University), Ph.D. (Bradford University), Professor (Cairo University), MASME, MAMSE.

BIRTH: **19 th Feb., 1947, Egypt.**

MARITAL STATUS: **Married.**

WORK ADDRESS: **Department of Mechanical Design and Production, Faculty of Engineering, Cairo University, Giza, Egypt.**

HOME ADDRESS: **1 Makhzan Street, East Omrania, Giza**

TELEPHONE: **Res.: 02 35735494 (Giza)**
082 2320933 (Bani-Sweif)
0100 35 41 315 (Mobile)

E. MAIL: **galalhassaan@ymail.com**

URL: **http://scholar.cu.edu.eg/galal**

CAREER INTEREST:
Teaching and research in:

- **Engineering mechanics.**
- **Kinematics and dynamics of machines.**
- **Mechanism synthesis.**
- **Automatic control.**
- **Fluid power control.**
- **Mechanical vibrations.**
- **Machine design.**
- **History of Arabic & Islamic sciences.**

- Development of mechanical engineering.
- Experimentation.

EXPERIENCE:

Feb. 2007-now: Emeritus Professor

May 1993-Feb. 2007: Professor, Cairo University.

Sept. 2002-July 2003: Membership of the Faculty of Engineering Council, Cairo University.

Jan. 2003-2005: Scientific Supervisor, Bait El_khebra Training Center, Bani_Sweif (part time job).

Dec. 1990-Dec.1994: Manager of Rowad for Systems & Computers, Cairo (part time job).

Feb. 1985: Associate Professor, Cairo University.

Feb. 1986: Associate Professor, Bahrain University.

1990-now: Associate Professor, Professor & Emeritus Professor, Cairo University.

(1) <u>Teaching:</u>

- Theory of mechanisms and machines (B.Sc.).
- Mechanism design (B.Sc.).
- Experimentation (B.Sc.).
- Automatic control (B.Sc.).
- Mechanical vibrations (B.Sc.).
- Hydraulic components & circuits (B.Sc.).
- Development of mechanical engineering (B.Sc.)
- Automatic control (Higher Diploma).
- System dynamics & stress analysis (Higher Diploma)
- Fluid power control (M.Sc.).
- Mechanical vibrations (M.Sc.).
- Automatic control (M.Sc.).

(2) <u>Training:</u>

- Training engineers in a number of training centers: Center of Development of Higher Studies (Cairo university), Gesco, Icemec, Iron & Steel Training Center, Arabic Organization for Industrialization, Center of Engineering Services (AUC).

(3) <u>Developing scientific & technological computer packages:</u>

- VIBRATION.
- CONTROL.
- FLUID POWER.
- BASIC HYDRAULICS.
- MODELING.
- CONTROLLER TUNING.

- BALANCING.
- VALVES.
- DYNAMICS OF RECIPROCATING MACHINERY.

(4) <u>Refereeing:</u> Refereeing scientific papers , research projects, M.Sc. & Ph.D. theses and promotion work for:
- Supreme Egyptian Promotion Committee of Mechanical Design & Production.
- King Abul-Aziz University, Saudi Arabia.
- Mu'ta University, Jordon.
- Ballarat University, Australia
- Military Technical College, Egypt.
- Sweis Canal University, Port Said
- Shubra Faculty of Engineering, Egypt.
- **- J. of Engineering & Applied Science, Cairo University**
- International Conference of Mechanical Design & Production, Cairo University.
- Permanent Scientific Committee, National Center for Water Research.

1984-1990: **(1) Associate professor, Bahrain University, teaching:**
- Mechanics.
- Dynamics.
- Mechanics of machines.
- Systems dynamics.
- Dynamics of machines.
- Mechanical vibrations.
- Systems control.
- Engineering measurements.
(2) Membership of the Engineering College council, Bahrain University, 1988-1990.
(3) Chairing the Graduate Committee of the Mech. Eng. Dept., Bahrain University, 1988-1990.
(4) Membership of the following committees (Bahrain University):
- Curriculum Committee, 1985/1986.
- Rules & Regulations Committee, 1985/1986.
- Research Committee, 1988-1990.
- Program Development Committee, 1986-1990.
(5) Coordination of the B.Sc. program of the Mechanical Engineering Department, Bahrain University,1985-1986.

(6) Coordination of the Dynamics Laboratory, Bahrain University,1985-1987.

(7) Coordination of the vibration laboratory, Bahrain University, 1987-1990.

(8) Supervision of a number of B.Sc. and Diploma projects, Bahrain University,1985-1990.

(9) Students advisor, Bahrain University, 1985-1990.

1979-1984: **(1) Assistant Professor, Department of Mechanical Design & Production, Cairo University teaching:**

- Mechanical vibrations.

- Automatic control.

- Optimal control.

- Plastics processing.

2) The supervision of B.Sc., Diploma and M.Sc. projects, Cairo University.

(3) The responsibility for the arrangement and ordering of new equipment for the dynamics laboratory, Cairo University, 1979/1980.

(4) Membership of Cairo University research teams working for:

- Cairo University/MIT joint project assignments involving the promotion of plastic piping systems in housing drainage, the adaptation of international standards to local conditions and the design and development of modular pipe systems for housing drainage, 1980-1984.

- Cairo University/United Nations joint project aiming at the development of an advanced postgraduate studies, 1982-1984.

- The improvement of a single cylinder Diesel engine used in driving centrifugal pumps for irrigation purposes, 1980-1982.

- Troubleshooting of a large Italian plastic thermoforming machine where the optimal operating conditions were defined, 1980-1981.

- Study of the processes, machines and materials required to establish a complete factory for the production of fuel, oil and air filters in Egypt, 1981/1982.

- Cairo Universities/American Universities linkage project aiming at standardizing the plastic pipes and fittings in Egypt, 1983/1984.

- The reduction of vibration and noise levels in window type air conditioning unit, Cairo University/Coldair Factory joint project, 1983/1984.

(5) Lecturing in a number of training centers to engineers working in industry.

1975-1979: (Study leave from Cairo University to obtain the Ph.D. from Bradford University, U.K.).. Experience gained:

(1) Evaluation of molten plastics flow properties using Instron Rheometer, 1975/1976.

(2) Experimental and theoretical analysis of plastics flow through rod dies, 1976.

(3) Computer_aided design of a restrictor valve to suit a 40 mm plastics extruder, 1976/1977.

(4) Analysis and design of digital computer_plastics extruder_interface components to facilitate a complete computer control of the extruder.

(5) The application of steady state optimization techniques to assign the optimal settings of the extruder variables at different operating temperatures, outputs and materials, 1978.

(6) Development of adaptive-optimal computer control strategies to control the dynamic change in the plastic melt temperature and pressure, 1978.

1970-1975: (1) Demonstrator (1970-1974) and assistant lecturer (1974/1975) assisting in teaching: theory of machines, automatic control, mechanical vibrations, engineering drawing.

(2) Research experience during the period 1971-1974 leading to the M.Sc. degree.

EDUCATION:

Feb. 2007	**Emeritus Professor, Cairo University.**
May 1993	**Professor, Cairo University.**
Feb. 1985	**Associate Professor, Cairo University.**
1986	**Associate Professor, Bahrain University.**
1975-1979	**Ph.D., Bradford University, U.K.**
1971-1974	**M.Sc., Cairo University.**
1970/1971	**Certificate of Postgraduate courses, Cairo University.**
1965-1970	**B.Sc. in Mechanical Engineering, Cairo University.**

SCHOLARSHIPS:

(1) ICI Ltd. full tuition scholarship, Bradford University, U.K., 1975 - 1978.

(2) Bradford University full tuition scholarship, 1978/1979.

MEMBERSHIP OF ENGINEERING SOCIETIES:
(1) The American Society of Mechanical Engineers (ASME).
(2) The Association for the Advancement of Modeling & Simulation in Enterprises (AMSE).

LANGUAGES: Arabic, English.

PUBLICATIONS:
1. "Dynamic response of liquid lines used in control systems including temperature effects", G. Hassan & M. Alaraby, Bulletin of the Faculty of Eng., Cairo University, 1974.
2. "Computer controlled injection moulding and extrusion", G.Hassan et al., Plastics & Rubber Processing, 1978.
3. "Modification of dynamics of fluid lines used in control systems",G.Hassan & M. Alaraby, Bulletin of the Faculty of Eng., Cairo University, 1979/II.
4. "On the dynamics of fluid transmission lines at elevated temperatures", G.Hassan & M. Alaraby, 3rd Int. Conf. for Mechanical Power Eng., Menofia University, Oct. 1980.
5. "Model reference optimal steady state adaptive computer control of plastics extrusion processes", G.Hassan & J. Parnaby, Polymer Eng. Science, April 1981.
6. "Applications of control in process engineering", G.Hassan et al., The Centenary Conf. Meeting of the Society of Chemical Industry, Cambridge University, April 1981.
7. "Design of plastics processing machinery using lumped parameter methods", G.Hassan et al., Plastics & Rubber Processing and Applications, Dec. 1981.
8. "Towards the standardization of plastic piping systems in the Egyptian housing industry", G.Hassan, et al., 2nd Int.Conf. on Technology for Development, Cairo, May 1982.
9. "Design of a novel restrictor valve for the plastics extrusion process", G.Hassan & J.Parnaby, Scientific Eng. Bulletin, Cairo University, 1983/1.
10. "Steady state optimal setting of the plastics extrusion control variables", G.Hassan, ibid, 1983/2.
11. "Steady state model for Helwan reversing four high mill cold rolling stand", G.Hassan & G.Ibrahim, 1st AME Conf., Military Technical College, May 1984.
12. "Steady state shape control of cold rolled steel sheets", G.Hassan & G.Ibrahim, ibid.
13. "Steady state force analysis of four way underlap hydraulic spool servovalves", G.Hassan et al., ibid.
14. "Optimal design of helical compression springs subjected to static loads", G.Hassan & A.Abdel-Moaty, ibid.

15. "Towards an Egyptian standard for PVC pipes and fittings used in sanitary drainage inside buildings", Scientific Eng. Bulletin, Cairo University, 1984/4.
16. "Vibration of window type air conditioning units: measurement & analysis", G.Hassan, ibid, 1985/1.
17. "Steady state modelling of the rotating kiln used in the cement industry", G.Hassan & A.Abdel-Ghani, ibid, 1985/2.
18. "Steady state modelling of the flash furnace used in the cement industry", ibid, 1st Int. Ain Shams Conf. on Production Eng. & Design for Development, Dec. 1984.
19. "Effect of front and back tensile stresses variation on the performance of aluminium four high cold rolling mills", G.Hassan & A. Atwa, Cairo University 3rd Conf. on Mechanical Design & Production, Dec. 1985.
20. "Speeds of automotives rear wheels during turning", G.Hassan, Voice of Technology, Gulf Polytechnic Magazine, Bahrain, Vol.5,1985.
21. "Introduction to cement plant modelling: raw mix materials and design", G.Hassan & A.Abdel-Ghani, ibid, Vol.6,1986.
22. "Steady state optimization of cold rolling reversing four high steel sheet mills", G.Hassan & G.Ibrahim, 3rd Int. Conf. on Production Eng., Design & Control, Alexandria University, Dec. 1986.
23. "Effect of rolls dimensions on the performance of four high aluminium mills", G.Hassan & A.Atwa, Voice of Technology Magazine, Vol.7, 1987.
24. "Modelling of the combustion process in the rotary kiln and flash furnace of the cement process", G.Hassan & A.Abdel-Ghani, J. of Modelling, Simulation & Control, B, 13, 2, 1988.
25. "On reduction of vibration levels in window type air conditioning units", G.Hassan, ibid, 18,3, 1988.
26. "العلاقة بين الجامعة والمراكز الانتاجية – تطبيقات عملية" ، جلال حسان، المجلة العربية للعلوم، العدد 12، 1988.
27. "Control of the flash furnace-kiln system of the cement industry", G.Hassan & A.Abdel-Ghani, J. of Modelling, Simulation & Control, B, 22,4, 1989.
28. "The role of mechanical vibration in predictive maintenance programs", G.Hassan, J. of Inst. of Engineers, India, Vol.70, Nov. 1989.
29. "دور الحاسبات الصغيرة في التعليم الهندسي" ، جلال حسان، المجلة العربية للعلوم، العدد 14، 1989
30. "Experimental systems control", G.Hassan, Dar Alfikr Alaraby (Publisher), 1989.
31. "Data for cement plant modeling and control", G.Hassan & A.Abdel-Ghani, J. of Modeling, Simulation & Control, 20,2, 1990.
32. "Experimental modeling and optimization of turning medium carbon steel", G.Hassan & S.Suliman, Int. J. of Production Research, 28,6, 1990.
33. "Determination of optimal machinability data for steel turning", G.Hassan & S.Suliman, J.of Inst. of Engineers, India, Vol.71, 1990.
34. "دعوة إلى تعريب العلوم"، جلال حسان، جريدة الأيام، البحرين، يناير 1990

35. “Modeling, optimization and response curves of milling low carbon steel”, S.Suliman & G.Hassan, Int. J. of Production Research, Vol.29, 1991.
36. “Turning process model for steady state optimal control”, S.Suliman & G.Hassan, ibid, Vol.30, 1992.
37. “Towards process computer control”, G.Hassan, J. of Eng. & Applied Science, Vol.39, 1992.
38. “Computer-aided gun destruction using tracked trajectory”, G.Hassan, 17th Conf. on Statistics & Computer Science, Cairo University, Dec. 1992.
39. “Computer-aided identification of industrial processes”, G.Hassan, Advances in Modelling & Analysis, Vol.36, 1993.
40. “Computer-aided tuning of analog and digital controllers”, G.Hassan, J. of Control & Computers, Vol.21, 1993.
41. “Simple tuning of analog controllers, Part I: first order processes”, J. of Eng. & Applied Science, Vol.40, 1993.
42. “New approach for computer-aided static and dynamic balancing of rigid rotors”, G.Hassan, J. of Sound & Vibration, 179, 5, 1995.
43. “Simple tuning of analog controllers used with second order processes”, G.Hassan, 2nd Conf. on Eng. Research, Faculty of Engineering, Port Said, Nov. 1995.
44. “Banu-Musa, the founders of automatic control”, G.Hassan, 8th MDP Conf., Cairo University, 2004.
45. “Computer-aided balancing of flexible rotors”, G.Hassan & O.Kandil, ibid, 2004.
45. "الحضارة العربية الزاهرة ", Electronic Book, 2006.
46. “Air-to-air missile control using neural network”, G.Hassan, et al. ibid,2004.
47. "Effects of fiber orientation and laminate stacking sequence on out of plane and in-plane bending natural frequencies of laminated composite beams", G. Hassan, M. Fahmi and I.Goda, 9th Int. Conf. on PEDAC, Alexandria University, Alexandria, 10-12 Feb. 2009.
48. " The effects of fiber orientation and laminate stacking sequences on the torsional natural frequencies of laminated composite beams", G. Hassan, M. Fahmi and I.Goda, ibid.
49. "Parametric study of the free vibration response of laminated composite beams ", Accepted for publication, Scientific Journal of the Faculty of Engineering. Ain Shams University.
50. " A STUDY OF A 10 DEGREES OF FREEDOM MODEL FOR VEHICLE DAYNAMICS RESPONSE TO ROAD HUMP" ,N. Abdel-azim & G. Hassan, Al-Azhar Engineering 11th Int. Conference, Dec. 21-23, 2010, Egypt.

51. " Frequency Response of 10 Degrees of Freedom Model For Vehicle Dynamics", N. Abdel-azim & G. Hassan, 14th AMME Conf., 25-27 May, 2010, Military Technical College, Egypt.

52. Frequency Response of 10 Degrees of Freedom Model For Vehicle Ride", N. Abdel-azim & G. Hassan, 14th AMME Conf., 25-27 May, 2010, Military Technical College, Egypt.

53. " Experimental Investigation of the Dynamic Characteristics of Laminated Composite Beams", G. Hassan & Others, Int. J. of Mechanical & Mechatronics Eng., Ein Shams University, Vol. 10, No.2.

54. " TOWARDS ERROR DETECTION AND CONTROL OF OFFSET PRINTING PROCESSES"; H. Saad, G. Hassaan, Y. Ziyada, Al-Azhar Engineering 11th Int. Conference, Dec. 21-23, 2010, Egypt.

55. "Optimal synthesis of a 4-bar simple toggle", G. Hassaan, M. Al-Gamil & M. Lashin, J. of American Science, Vol.7, N0.11, 2011.

56. "New approach for the synthesis of planar 4 bar mechanisms for 2 coupler positions generation", G. Hassaan, M. Al-Gamil & M. Lashin, New York Science J., Vol.5, No.10, 2012, pp..86-90.

57. "Computer-aided data for machinery foundation analysis and design"; G. Hassaan, M. Al-Gamil & M. Lashin, Researcher, Vol4, No.1, 2012.

58. " Optimal kinematic synthesis of 4-bar crank-rocker mechanisms for specific stroke and time ratio", G. Hassaan, M. Al-Gamil & M. Lashin, (under publication).

59. "Tuning of a PIDF controller used with a highly oscillating second order process", G. Hassaan, M. Al-Gamil & M. Lashin, Int. J. of Emerging Technology and Advanced Engineering, Vol.3, No.3, 2013.

60. "Tuning of a lag-lead compensator used with first order plus an integrator processes", G. Hassaan, M. Al-Gamil & M. Lashin, Int. J. of Mechanical & Production Engineering Research & Development, Vol.3, No.5, 2013.

61. "The effect of fiber orientation and laminate stacking sequence on the torsional natural frequencies of laminated composite beams", M. Fahmy, G. Hassaan and I. Goda, Int. J. of Research in Engineering & Technology, Vol.2, No.12, Dec. 2013.

62. "Vibration experiments", G. Hassaan, Electronic Book, January, 2014.

63. "تطور الهندسة الميكانيكية: عصر قدماء المصريين – المجلد الأول", Galal Hasaan, Electronic Book, January, 2014.

64. "تطور الهندسة الميكانيكية: عصر قدماء المصريين – المجلد الثاني ", Galal Hasaan, Electronic Book, January, 2014.

65. "المراجع التاريخية القديمة بالمكتبة المركزية لجامعة القاهرة", Galal Hasaan, Unpublished book.

66. "فن إتقان العمل", Galal Hasaan, Unpublished book.

67. "Optimal synthesis of a single dwell 6-bar planar linkage", Galal Hassaan, Int. J. of Computational Engineering Research, Vol.4, No. 2, February 2014, pp.50-56.

68. "Simple tuning of PID controllers used with overdamped second order processes", Galal Hassaan, International Journal of Research in Engineering and Technology, Vol.2. No. 4, April, 2014, pp.87-96.

69. "Tuning of a novel feedback first-order compensator used with a highly oscillating second-order process", Galal Hassaan, International Journal of Research in Engineering and Technology, Vol.2. No. 4, April, 2014, pp.207-216.

70. "Optimal design of machinery shallow foundations with clay soils", Galal Hassaan, International Journal of Mechanical Engineering and Technology, Vol.5, No.3, March 2014, pp.91-103.

71. "Optimal design of machinery shallow foundations with sand soils", Galal Hassaan, International Journal of Research in Engineering and Technology, Vol.3, No.5, May 2014, pp.1-8.

72. "Optimal design of an anti-accident vehicle buffer", Galal Hassaan, International Journal of Research in Engineering and Technology, Vol.2. No. 5, May, 2014, pp.161-168.

73. "On simple tuning of PID controllers for underdamped second order processes", Galal Hassaan, International Journal of Production Engineering Research and Development, Vol.4. No. 3, June 2014 , pp.61-68.

74. "Tuning of a novel feedback first-order compensator used with highly oscillating second-order processes", Galal Hassaan, International Journal of Research in Engineering & Technology, Vol.2, No.4, April 2014, pp.207-216.

75. "Tuning of a PD-PI controller used with first-order delayed processes", Galal Hassaan, International Journal of Engineering Research & Technology, Vol.3, No.4, April 2014, pp.2751-2755.

76. "Tuning of an I-PD controller used with a highly oscillating second-order process", Galal Hassaan, International journal of Mechanical Engineering & Technology, Vol.5, No.5, May 2014, pp.115-121.

77. "Tuning of a PD-PI controller used with an integrating plus delay time process", Galal Hassaan, International Journal of Advanced Engineering Technology, Vol.5, No.2, April-June 2014.

78. "Optimal design of a vibration-harvester dynamic system", Galal Hassaan, International Journal of Research in Engineering and Technology, Vol.3, No.6, June 2014, pp.325-329.

79. "A novel feedback PD compensator used with underdamped second-order processes", Galal Hassaan, International Journal of Mechanical Engineering, Vol.4, No.2, 2014, pp.1-10 (invited paper).

80. "Tuning of a PD-PI controller used with a highly oscillating second-order process", Galal Hassaan, International Journal of Scientific and Technical Research, Vol.3, No.7, 2014, pp.145-147.

81. "Tuning of a PDFF controller used with a very slow second-order process", Galal Hassaan, International Journal of Advanced Research in Computer Science and Technology, Vol.2, No.3, Version 2, 2014, pp.175-178.

82. "A novel feedback PD compensator used with a third-order process", Galal Hassaan, International Journal of Advanced Research in Computer Science and Technology, Vol.2, No.3, Version 2, 2014, pp.190-193.

83. "Dynamics of a cannon barrel-recoil mechanism with nonlinear hydraulic damper", Galal Hassaan, International Journal of Modern Scientific and Engineering Technology, Vol.1, No.5, 2014, pp.82-91.

84. "A novel 2/2 second-order compensator used with a highly oscillating second-order process", Galal Hassaan, International Journal of Engineering Research and Management, Vol.1, No.6, 2014, pp.63-65.

85. "On tuning a novel 2/2 feedforward second-order compensator to control a very slow second-order-like process", Galal Hassaan, International Journal of Advanced Research in Computer Science and Technology, Vol.2, No.3, 2014, pp.326-328.

86. "A novel notch compensator used with a highly oscillating second-order process", Galal Hassaan, International Journal of Advanced Research in Computer Science and Technology, Vol.2, No.3, 2014, pp.334-338.

87. "Tuning of a PID with first-order-lag controller used with a highly oscillating second-order process", Galal Hassaan, International Journal of Scientific and Technology Research, Vol.3, No.9, 2014, pp.314-317.

88. "Tuning of a feedforward lag-lead second-order compensator used with a highly oscillating second-order process", Galal Hassaan, International Journal of Mechanical Engineering, Vol.4, No.3, 2014, pp.25-33.

89. "Tuning of a PDF controller used with a very slow second-order process", Galal Hassaan, Elixir Mechanical Engineering Journal, Vol.75, 2014, pp.27501-27503.

90. “Minimax optimization of dynamic pendulum absorbers for a damped primary system”, M. Abdelhafiz and G. Hassaan, International Journal of Scientific and Technology Research, Vol.2, No.3, 2014, pp.209-215.
91. “Optimal design of an anti-accidents vehicle buffer”, Galal Hassaan, International Journal of Research in Engineering and Technology, Vol.2, No.5, 2014, pp.161-168.
92. “Optimal design of a vibration-harvester dynamic system”, Galal Hassaan, International Journal of Research in Engineering and Technology, Vol.3, No.6, 2014, pp.325-329.
93. “Robustness of feedforward second-order compensators used with second-order-like processes”, Galal Hassaan, International Journal of Engineering Research and Management, Vol.1, No.6, 2014, pp.83-86.
94. “Robustness of feedforward notch and Sallen-Key compensators used with second-order processes”, Galal Hassaan, International Journal of Innovation and Applied Studies, Vol.8, No.3, 2014, pp.999-1007.
95. "Robustness of the feedback PD compensator used with second-order processes", Galal Hassaan, International Journal of Advanced Research in Computer Science and Technology, Vol.2, No.4, 2014, pp.10-14.
96. "Tuning of a first-order lag-lead compensator used with a simple pole plus double integrator process", Galal Hassaan, International Journal of Advanced Research in Computer Science and Technology, Vol.2, No.4, 2014, pp.17-20.
97, "Innovation of mechanical machinery in medieval centuries, Part II: water pumps, clocks and robotics", Galal Hassaan, International Journal of Engineeering Research and Management, Vol.1, No.7, 2014, pp.99-104.
98. "Dynamics of a cannon barrel-recoil mechanism with air springs", International Journal of Innovation and Applied Studies, Vol.9, No.2, 2014, pp.511-522.
99. "Tuning of a PI-PD controller used with a highly oscillating second-order process", Galal Hassaan, International Journal of Research and Innovative Technology, Vol.1, No.3, August, 2014, pp.42-45.
100. “Tuning of a novel feedback first-order compensator used with a highly oscillating second-order process”, Galal Hassaan, International Journal of Research in Engineering and Technology, Vol.2, No.4, 2014, pp.207-216.
101. “Robustness of PD and PID controllers used with second-order processes”, Galal Hassaan, International Journal of Engineering Sciences and Research Technology, Vol.3, No.9, 2014, pp.11-15.
102. “On dynamics of a cannon barrel-recoil mechanism with nonlinear hydraulic damper and air springs”, International Journal of Research in Information Technology, Vol.2, No.9, 2014, 704-714.
103, "Innovation of mechanical machinery in medieval centuries, Part III: Hydraulic control components and feedback control systems”, Galal Hassaan,

International Journal of Advanced Research in Computer Science and Management Studies, Vol.2, No.11, 2014, pp.15-28.
104. "A novel Sallen-Key compensator used with a highly oscillating second-order process", Galal Hassaan, International Journal of Advanced Research in Computer Science and Management Studies, Vol.2, No.11, 2014, pp.77-83.
105, "Innovation of mechanical machinery in medieval centuries, Part I: Windmills, water wheels and automatic foundations", Galal Hassaan, International Journal of Innovation and Applied Studies, Vol.9, No.4, 2014, pp.1497-1505.

TRAINING COURSES:
Conducted the following training courses for engineers working in various engineering locations:

1. **Introduction to machinery vibrations.**
2. **Vibration measurements and analysis.**
3. **Balancing of rotating machinery.**
4. **Dynamics of reciprocating machinery - stage 1.**
5. **Dynamics of reciprocating machinery - stage 2.**
6. **Machinery predictive maintenance.**
7. **Hydraulic valves.**
8. **Troubleshooting hydraulic systems.**
9. **Troubleshooting pneumatic systems.**