Department of Mechanical Engineering
Faculty of Engineering and Technology

12th August, 2015

Minutes of the Meeting of BOS held on 12th August, 2015

A meeting of the members of Board of Studies of the Department of Mechanical Engineering, Faculty of Engineering and Technology, Jamia Millia Islamia, New Delhi was held on Wednesday 12th August, 2015 at 3:30 P.M. in the office of the Head. Following members were present.

1.	Prof. Mohd Islam	Chairman and Head of the Department
2.	Prof. Abid Haleem	Member
3.	Prof. M. Emran Khan	Member
4.	Prof. M. M. Hasan	Member
5.	Prof. Z. A. Khan	Member
6.	Prof. Mohd Suhaib	Member
7.	Dr. Arshad Noor Siddiquee	Member
8.	Dr. S.M. Muzakkir	Member
9.	Dr. Aas Mohd	Member
10.	Dr. Islam Nawaz	Member
11.	Dr. Sabah Khan	Member
12.	Dr. Mohd Asjad	Member
13.	Dr. A. F. Sherwani	Member
14.	Mr. Mohd. Javaid	Member
15.	Mr. Mohd. Shoeb	Member

Following members were granted leave of absence

1.	Prof. S. M. Yahya	Co-opted Member
2.	Prof. Saranjit Singh	Nominated Member
3.	Prof. Khalid Moin	Nominated Member
4.	Prof. S. G. Deshmukh	Co-opted Member
5.	Prof. J. A. Usmani	Member (Leave)
6.	Prof. Mukhtar Ahmad	Member (Leave)
7.	Prof. Z. Mallick	Member
8.	Mrs. Halima Begum	Member (Leave)
9.	Mr. Lokesh Kumar	Member (Study Leave)

The meeting started at 3:30 p.m. The chairman welcomed all the members present in the meeting.

Following items were discussed and approved in the meeting

1. Minutes of the BOS meeting held on 28th April, 2015, were confirmed.

2. The members discussed the Internal Assessment and Evaluation of Project/Dissertation of B.Tech./M.Tech./B.E Students and decided that 50% of sessional marks (60 marks) shall be given by a committee consisting of four faculty members belonging to the same stream (Design/Thermal/Production & Industrial) including the supervisor during the presentations, one each after the two sessional tests. If the supervisor is officially not available then the committee will award the marks.

3. B.Tech. (Mech. Engg.) syllabus revision was discussed and 10% (Average) change in the syllabus was approved.

4. The meeting ended at 4: 30 pm with a vote of thanks to the chair.

(Professor Mohd. Islam)
Chairman, BOS

Head
Deptt. of Mechanical Engg.
Jamia Millia Islamia
New Delhi-110025

Copy to:

1. All the members of the BoS of Mechanical Engineering Department.
2. The Dean, Faculty of Engineering and Technology, JMI.
3. The Registrar, JMI for information and necessary action.
4. P. S. to Vice Chancellor for the kind information of Vice Chancellor, JM.I
5. BOS file.

Note: *Any clarifications and comments on the minutes may kindly be brought to the notice of the chairman, BOS. If no comments are received within a week of the issue, the minutes will be deemed as confirmed.*

Summary of B.Tech. (Mech. Engg.) Programme Curriculum and Course Syllabus Revision

Subject	Topics Removed in 2012-13	Topics added in 2015-16
1. Basics of Mechanical Engineering (ME-101)	....	To 1 & 2nd Sem
2. Engineering Mechanics (ME-101)	From 1st Sem	....
3. Thermodynamics (ME-201)	From 2nd Sem	....
4. Applied Thermodynamics (BM – 303)	Unit - II Types of thermodynamic cycle	Unit II Thermodynamic cycles,
5. Instrumentation, Measurement And Control (BM – 405)	From 3rd Sem	To 4th Sem
6. Numeric And Scientific Computing	(BTM-505) from 5th Sem	(BM – 406) to 4th Sem
7. Organisation Behaviour and Management (BTM – 401)	From 4th Sem	....
8. Mathematics –III (BTM-406)	From 4th Sem	....
9. Kinematics of Machines (BM –501)	....	To 5th Sem
10. Theory of Machines (BTM –501	From 5th Sem	....
11. Engineering Economy	(BTM-502) from 5th Sem	(BM-504) to 5th Sem
12. Design of Mechanical Components (BM-503)	....	To 5th Sem

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13. Machine Design-I (BTM-504)	From 5th Sem	....
14. Electromechanical Energy Conversion	(BTM-506) from 5th Sem	(BTM-505) to 5th Sem
15. Computer Aided Manufacturing (BM- 601)	....	To 6th Sem
16 Internal Combustion Engines	(BTM-601)From 6th Sem	BM - 605 To 6th Sem
17. Design of Mechanical System (BM-602)	....	To 6th Sem
18. Machine Design-II (BTM-602)	From 6th Sem	....
19. Non-Conventional Manufacturing Processes (BTM-603)	From 6th Sem	....
20. Operations Research	BTM- 604 From 6th Sem Unit-II Introduction to non-linear programming. Unit-IV Design and Evaluation of simulation experiments. Sequencing, n jobs two stations and 2 jobs n stations.	BM- 603 to 6th Sem Unit-IV Sequencing, n jobs two stations, two jobs n stations and graphical method.
21. Refrigeration and Air-Conditioning	BTM- 605 From 6th Sem	BM- 604 to 6th Sem
22. Machine Dynamics (BTM-606)	From 6th Sem	....
23. Dynamics of Machine and Mechanical Vibrations (BM-701)	....	To 7th Sem
24. Production	BTM-705 From 7th Sem	BM-702 To 7th Sem

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Engineering -II		
25. Turbo-Machinery5	BTM-701 From 7th Sem	....
25. Turbo-Machines	....	BTM-701 To 7th Sem
27. Energy Sources (BM-704)	....	To 7th Sem
28. Industrial Engineering	BTM-702 From 7th Sem Unit-I Value Engineering: Introduction to value engineering. Phases and application	BM-705 To 7th Sem Unit-I Brief about basic areas of industrial engineering.
29. Mechanical Vibrations (BTM-703)	From 7th Sem	....
30. Automobile Engineering	(BTM-704) From 7th Sem	BM-803 To 8th Sem
31. Product Design	BTM - 803 From 8th Sem Unit-I Value engineering Applications in Product development and design, Model-based technology for generating innovative ideas. Unit – V Seminar and exercises related to above topics	BM - 801 To 8th Sem Unit-I Introduction to AM Unit – IV Computer-aided design (CAD), need for CAD, components of CAD systems, advantages. Various design tools in product development, product development process stages, QFD, concurrent engineering.Value engineering Applications in Product development and design, Model-based technology for generating innovative ideas. 3D scanner: its types with scanning principle, applications.Overview of

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| | | Steinbichler blue light 3D scanner, different components function and working principle. Rhinoceros 3D software,

Unit – V

Differentiate Additive manufacturing from subtractive manufacturing. Step used to create a 3D model. Different technologies used in additive manufacturing technologies like Stereolithography (SLA), Selective laser sintering (SLS), Fused deposit modeling (FDM), Selective Laser Melting (SLM), Laminated Object Manufacturing (LOM), Direct Metal Laser Sintering (DMLS), Inkjet Printing (IJP), Polyjet 3D printing, binding jet 3D printing, Built mechanism of each technology, applications. Overview of Colour-Jet 3D Printing (CJP), working principle, the material used, post processing in CJP. Project, seminar and exercises related to the above topics |
|---|---|---|
| 32. Robotics | BTM-831 From 8th Sem | BM-802 to 8th Sem |
| 33. **Ergonomics** | .... | BM-804 to 8th Sem |
| 34. **Human Factors Engineering** | BTM-832 From 8th Sem | .... |

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Jamia Millia Islamia
New Delhi-110025

JAMIA MILLIA ISLAMIA

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Website: http://jmi.ac.in
Email Id: mislam@jmi.ac.in

Department of Mechanical Engineering
Faculty of Engineering and Technology

Dated : 12.08.2015

LIST OF BOS MEMBERS

S.NO	NAME	SIGNATURE
1	PROF. & Head, MOHD. ISLAM (Chairman)	
2	PROF. S.M. YAHYA (Co-opted Member)	
3	PROF. S.G. DESHMUKH (Co-opted Member)	
4	PROF. KHALID MOIN (Nominated Member)	
5	PROF. SARANJEET SINGH (Nominated Member)	
6	PROF. ABID HALEEM	
7	PROF. MUKHTAR AHMED	
8	PROF. M. EMRAN KHAN	
9	PROF. J. A. USMANI	
10	PROF. M. M. HASAN	
11	PROF. Z. A. KHAN	
12	PROF. ZULQURNAIN MALLICK	
13	PROF. MOHD. SUHAIB	
14	PROF. M. N. KARIMI	
15	PROF. ABDUR RAHIM	
16	MRS. HALEEMA BEGUM	
17	DR. ARSHAD NOOR SIDDIQUEE	
18	DR. S.M. MUZAKKIR	
19	DR. AAS MOHAMMAD	
20	MR. LOKESH KUMAR	On Leave
21	DR. ISLAM NAWAZ	
22	DR. SABAH KHAN	
23	DR. ALI HASAN	
24	DR. MOHD. ASJAD	
25	DR. AHMAD FAIZAN SHERWANI	
26	MR. MOHD. JAVAID	
27	MR.MOHD. SHOEB	

Course Structure of
M. Tech. (Mechanical) Machine Design/Thermal Engg./Production & Industrial Engg.

MECHANICAL ENGINEERING DEPARTMENT, Faculty of Engineering & Technology, *Jamia Millia Islamia*

M. Tech. (Mechanical) I SEMESTER (Machine Design)

S. No.	COURSE NO. & NAME	COURSE TYPE	Credits	L	T	P	HRS
1	ASC-901 Advanced Mathematics	PC (CBCS)	4	3	1	0	4
2	MEC-901 Optimization Methods	PC	4	3	1	0	4
3	MEC-902 Technical Communications	PC	4	3	1	0	4
4	MED-901 Theoretical and Experimental Stress Analysis	PC	4	3	1	0	4
5	MED-902 Advanced Mechanical Engineering Design	PC	4	3	1	0	4
6	*MED-903 Mechanics of Multi-phase Materials	PE	4	3	1	0	4
i	MED-904 Experimental Stress Analysis and Advanced Mechanical Engg. Design Laboratory	PC Lab	2	0	0	4	4
ii	MEC-903 Computer Applications & Programming Laboratory	PC Lab	2	0	0	4	4
		Total	28	18	6	8	32

M. Tech. (Mechanical) II SEMESTER (Machine Design)

S. No.	COURSE NO. & NAME	COURSE TYPE	Credits	L	T	P	HRS
1	MEC-906 Finite Element Methods	PC (CBCS)	4	3	1	0	4
2	MEC-907 Statistics For Decision Making	PC	4	3	1	0	4
3	MED-905 Advance Mechanism	PC	4	3	1	0	4
4	MED-906 Vibration Engineering	PC	4	3	1	0	4
5	* MED-907 Tribological System Design	PE	4	3	1	0	4
i	MED-908 Vibration Engineering and Mechanisms Laboratory	PC Lab	2	0	0	4	4
		Total	**22**	**15**	**5**	**4**	**24**

*The course may be opted from the list of Elective courses given at the end.

M. Tech. (Mechanical) III SEMESTER (Machine Design)

S. No.	COURSE NO. & NAME	COURSE TYPE	Credits	L	T	P	HRS
1	*MED-909 Robotics	PE (CBCS)	4	3	1	0	4
2	* MED-910 Design of Experiments	PE	4	3	1	0	4
3	MEC-910 Project	PC	4	0	0	8	8
4	MEC-911 Seminar	PC	2	0	0	4	4
		Total	14	6	2	12	20

M. Tech. (Mechanical) IV SEMESTER (Machine Design)

S. No.	COURSE NO. & NAME	COURSE TYPE	Credits	L	T	P	HRS
1	MEC-912 Dissertation	PC	12	0	0	24	24
		Total	12	0	0	24	24

*The course may be opted from the list of Elective courses given at the end.

S. No.	COURSE NO.	COURSE NAME	Credit	L	T	P	HRS
		Program Electives					
1	MED-903	Mechanics of Multi-phase Materials	4	3	1	0	4
2	MED-907	Tribological System Design					
3	MED-909	Robotics					
4	MED-910	Design of Experiments					
5	MED-911	Mechatronics					
6	MED-912	Concurrent Engineering					
7	MED-913	Innovative Product Design					
8	MED-914	Fracture Mechanics					
9	MED-915	Artificial Intelligence and Robotics					
10	MED-916	Machinery Fault Diagnostics & Signal Processing					
11	MED-917	Vehicle Dynamics					
12	MED-918	Modal Analysis					
13	MED-919	Introduction to Human Body Mechanics					

Course Structure of
M. Tech. (Mechanical) Machine Design/Thermal Engg./Production & Industrial Engg.

MECHANICAL ENGINEERING DEPARTMENT, Faculty of Engineering & Technology, *Jamia Millia Islamia*

M. Tech. (Mechanical) I SEMESTER (Thermal Engg.)

S. No.	COURSE NO. & NAME	COURSE TYPE	Credits	L	T	P	HRS
1	ASC-901 Advanced Mathematics	PC(CBCS)	4	3	1	0	4
2	MEC-901 Optimization Methods	PC	4	3	1	0	4
3	MEC-902 Technical Communication	PC	4	3	1	0	4
4	MET-901 Advanced Fluid Mechanics	PC	4	3	1	0	4
5	MET-902 Advanced Thermodynamics	PC	4	3	1	0	4
6	* MET-903 I. C. Engines and Air Pollution	PE	4	3	1	0	4
i	MET-904 Thermal Engg. Laboratory	PC Lab	2	0	0	4	4
ii	MEC-904 Computer Applications & Programming Laboratory	PC Lab	2	0	0	4	4
		Total	28	18	6	8	32

M. Tech. (Mechanical) II SEMESTER (Thermal Engg.)

S. No.	COURSE NO. & NAME	COURSE TYPE	Credits	L	T	P	HRS
1	MEC-906 Finite Element Methods	PC (CBCS)	4	3	1	0	4
2	MEC-907 Statistics For Decision Making	PC	4	3	1	0	4
3	MET-905 Advanced Heat and Mass Transfer	PC	4	3	1	0	4
4	MET-906 Turbo-Machinery	PC	4	3	1	0	4
5	* MET-907 Utility Engineering	PE	4	3	1	0	4
i	MET-908 Advance Heat and Mass Transfer Laboratory	PC Lab	2	0	0	4	4
		Total	22	15	5	4	24

*The course may be opted from the list of Elective courses given at the end.

M. Tech. (Mechanical) III SEMESTER (Thermal Engg.)

S. No.	COURSE NO. & NAME	COURSE TYPE	Credits	L	T	P	HRS
1	*MET-909 Landfil Gas: from Environment to Energy	PE(CBCS)	4	3	1	0	4
2	*MET-910 Gas Dynamics	PE	4	3	1	0	4
3	MEC-910 Project	PC	4	0	0	8	8
4	MEC-911 Seminar	PC	2	0	0	4	4
		Total	14	6	2	12	20

M. Tech. (Mechanical) IV SEMESTER (Thermal Engg.)

S. No.	COURSE NO. & NAME	COURSE TYPE	Credits	L	T	P	HRS
1	MEC-912 Dissertation	PC	12	0	0	24	24
		Total	12	0	0	24	24

*The course may be opted from the list of Elective courses given at the end.

S. No.	COURSE NO.	COURSE NAME	Credit	L	T	P	HRS
		Program Electives					
1	MET-903	I. C. Engines and Air Pollution					
2	MET-907	Utility Engineering					
3	MET-909	Landfil Gas: from Environment to Energy					
4	MET-910	Gas Dynamics					
5	MET-911	Non-Conventional Energy Sources					
6	MET-912	Environmental Pollution and Abatement					
7	MET-913	Theory of Combustion and Emission	4	3	1	0	4
8	MET-914	Nuclear Power Generation and Supply					
9	MET-915	Computational Fluid Dynamics					
10	MET-916	Fuels and Combustion					
11	MET-917	Cryogenics					
12	MET-918	Design of Pump, Blowers and Fans					
13	MET-919	Fluid Controls					

Course Structure of
M. Tech. (Mechanical) Machine Design/Thermal Engg./Production & Industrial Engg.

MECHANICAL ENGINEERING DEPARTMENT, Faculty of Engineering & Technology, *Jamia Millia Islamia*

M. Tech. (Mechanical) I SEMESTER (Production & Industrial Engg.)

S. No.	COURSE NO. & NAME	COURSE TYPE	Credits	L	T	P	HRS
1	ASC-901 Advanced Mathematics	PC(CBCS)	4	3	1	0	4
2	MEC-901 Optimization Methods	PC	4	3	1	0	4
3	MEC-902 Technical Communication	PC	4	3	1	0	4
4	MEP-901 Operations Management	PC	4	3	1	0	4
5	MEP-902 Modern Manufacturing Methods	PC	4	3	1	0	4
6	* MEP-903 Computer Integrated Manufacturing	PE	4	3	1	0	4
i	MEP-904 Computer Integrated Manufacturing Laboratory	PC Lab	2	0	0	4	4
ii	MEC-905 Computer Applications & Programming Laboratory	PC Lab	2	0	0	4	4
		Total	28	18	6	8	32

M. Tech. (Mechanical) II SEMESTER (Production & Industrial Engg.)

S. No.	COURSE NO. & NAME	COURSE TYPE	Credits	L	T	P	HRS
1	MEC-906 Finite Element Methods	PC(CBCS)	4	3	1	0	4
2	MEC-907 Statistics For Decision Making	PC	4	3	1	0	4
3	MEP-905 Reliability Engineering	PC	4	3	1	0	4
4	MEP-906 Welding Technology	PC	4	3	1	0	4
5	* MEP-907 Foundry Technology	PE	4	3	1	0	4
i	MEP-908 Ergonomics Laboratory	PC Lab	2	0	0	4	4
		Total	22	15	5	4	24

*The course may be opted from the list of Elective courses given at the end.

M. Tech. (Mechanical) III SEMESTER (Production & Industrial Engg.)

S. No.	COURSE NO. & NAME	COURSE TYPE	Credits	L	T	P	HRS
1	*MED-909 Robotics	PE (CBCS)	4	3	1	0	4
2	* MED-910 Design of Experiments	PE	4	3	1	0	4
3	MEC-910 Project	PC	4	0	0	8	8
4	MEC-911 Seminar	PC	2	0	0	4	4
		Total	14	6	2	12	20

M. Tech. (Mechanical) IV SEMESTER (Production & Industrial Engg.)

S. No.	COURSE NO. & NAME	COURSE TYPE	Credits	L	T	P	HRS
1	MEC-912 Dissertation	PC	12	0	0	24	24
		Total	12	0	0	24	24

*The course may be opted from the list of Elective courses given at the end.

Program Electives							
S. No.	COURSE NO.	COURSE NAME	Credit	L	T	P	HRS
1	MEP-903	Computer Integrated Manufacturing	4	3	1	0	4
2	MEP-907	Foundry Technology					
3	MEP-909	Robotics					
4	MEP-910	Design of Experiments					
5	MEP-911	Rapid Prototyping Technology					
6	MEP-912	Advanced Material Science					
7	MEP-913	Metrology					
8	MEP-914	Tool Design					
9	MEP-915	Human Factors Engineering					
10	MEP-916	Supply Chain Management					
11	MEP-917	Total Quality Management					
12	MEP-918	Creative Problem Solving					
13	MEP-919	Project Management					

JAMIA MILLIA ISLAMIA

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Department of Mechanical Engineering
Faculty of Engineering and Technology

18th April, 2017

Minutes of the Extra-ordinary (Urgent) Meeting of BOS held on 18th April, 2017

A Extra-ordinary (Urgent) meeting of the members of Board of Studies of the Department of Mechanical Engineering, Faculty of Engineering and Technology, Jamia Millia Islamia, New Delhi was held on Tuesday, 18th April, 2017 at 3:00 p.m. in the office of the Head. Following members were present.

1.	Prof. J. A. Usmani	Chairman and Head of the Department
2.	Prof. Abid Haleem	Member
3.	Prof. Mohd.Islam	Member
4.	Prof. M. Emran Khan	Member
5.	Prof. M. M. Hasan	Member
6.	Prof. Z. A. Khan	Member
7.	Prof. Z. Mallick	Member
8.	Prof. M. N. Karimi	Member
9.	Prof. Abdur Rahim	Member
10.	Prof. Aas Mohd	Member
11.	Prof. Arshad Noor Siddiquee	Member
12.	Prof. S.M. Muzakkir	Member
13.	Mrs. Halima Begum.	Member
14.	Dr. Islam Nawaz	Member
15.	Dr. A. F. Sherwani	Member
16.	Dr. Mohd. Asjad	Member
17.	Mr. Mohd. Javaid	Member
18.	Mr. Mohd. Shoeb	Member

Following members were granted leave of absence

1.	Prof. S. M. Yahya	Co-opted Member
2.	Prof. S. G. Deshmukh	Co-opted Member
3.	Prof. Khalid Moin	Nominated Member
4.	Prof. Saranjit Singh	Nominated Member

Following members were on leave

1.	Prof. Mohd Suhaib	Member
2.	Dr. Sabah Khan	Member
3.	Dr. Ali Hasan	Member
4.	Mr. Lokesh Kumar	Member

The meeting started at 3:00 p.m. The chairman welcomed all the members present in the meeting.

The following item was discussed and approved in the meeting.

1.   The B.Tech. and M.Tech. program structure was discussed and approved. The same is
      attached as Annexure-I.
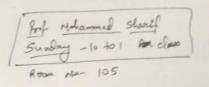2.   The meeting ended at 4: 30 pm with a vote of thanks to the chair.

(Prof. J. A. Usmani)   Head
Chairman, BOS   Mech. Engg. Deptt.
                          Jamia Millia Islamia
                            New Delhi-110025

Copy to:
      1   Dean, Faculty of Engineering and Technology, JMI.
      2   All faculty members of the Department of Mechanical Engineering.
      3   Prof. S.M. Yahya   (Co-opted Member)
      4   Prof. S.G. Deshmukh   (Co-opted Member)
      5   Prof. Khalid Moin   (Nominated Member)
      6   Prof. Saranjeet Singh   (Nominated Member)
      7   The Registrar, JMI for information.
      8   P.S. to the Vice Chancellor, JMI for information.
      9   Asstt. Registrar (Admn.), JMI
      10   BOS Folder, Mechanical Engineering Department

Note: Any clarifications and comments on the minutes may kindly be brought to the notice of the chairman, BOS. If
no comments are received within a week of the issue, the minutes will be deemed as confirmed.

Research Methodology

UNIT 1

Research process, types of research, steps in research process, steps in the formulation of research problem, sample design, types of sampling, primary and secondary data, methods of data collection, experimental design, basic principles of experimental design

UNIT 2

Summary statistics, measures of location and dispersion, box and whisker plots, concept of probability, random experiments, sample spaces, events, discrete and continuous random variables, probability density function, cumulative distribution function, different types of probability distribution functions

UNIT 3

General concepts of point estimation, methods of point estimation, sampling distribution, sampling distribution of means, statistical intervals for a single sample, confidence interval on the mean of a normal distribution with known variance, confidence interval on the mean of a normal distribution with unknown variance, t-distribution.

UNIT 4

Hypothesis testing for a single sample, tests of statistical hypothesis, one-sided and two-sided hypothesis, general procedure for hypothesis testing, p-values, type I and type II errors, statistical inference for two samples, tests on the mean of a normal distribution with known variance, tests on the mean of a normal distribution with unknown variance, tests on the variance and standard distribution of normal distribution

UNIT 5

Regression analysis, correlation analysis, hypothesis tests in simple linear regression, goodness of fit , use of t-test, ANOVA, analysis of variance approach to test the significance of regression, confidence intervals on slope and intercepts in simple linear regression, analysis of single factor experiments through ANOVA

Reference Books:

1. Dawson, Catherine. (2003), *Practical Research Methods*, New Delhi, UBS Publishers

2. Kothari, C. R. (1985), *Research Methodology- Methods and Techniques*, New Delhi, Wiley Eastern Limited.

3. Kumar, R. (2005), *Research Methodology-A Step-by-Step Guide for Beginners*, Pearson Education, Singapore

4. Mendenhall, W., and Sincich, T. (1988), *Statistics for the Engineering and Computer Sciences*, Dallen Publishing Company, San Francisco, California

5. Montgomery, D. C. (2013), *Design and Analysis of Experiments*, John Wiley & Sons, Inc., USA.

6. Montgomery, D. C., and Runger, G. C. (2003), *Applied Statistics and Probability for Engineers*, John Wiley & Sons, Inc., USA.