


FACULTY PROFILE

DEPARTMENT OF MECHANICAL ENGINEERING

Name of the Faculty	Designation/ Affiliation	Address/ Contact	Email (Institute) <i>@kitsw.ac.in</i>	
Dr. U. Shrinivas Balraj	Professor	Dept. of Mechanical Engineering, KITSW	usb.me@kitsw.org , u.shrinivas@gmail.com	

EDUCATION

Degree	Details (specialization)	Institute/University	Month , Year of Registered	Month , Year completed
B.Tech.	Mechanical Engineering	Shivaji University. Kolhapur	June 1994	May 1998
M.Tech	Computer Integrated Manufacturing	REC, Warangal Kakatiya University, Warangal	July 2000	April 2002
Ph.D	Electrical Discharge Machining	JNTU, Kakinada	July 2009	November 2014

ACADEMIC AFFILIATION CURRENT : Associate Professor

Details	From (Month, Year)	To (Month, Year)	Name of the Organization
Professor	April, 2019	Till Date	Kakatiya Institute of Technology & Science, Warangal
Associate Professor	March 2016	April, 2019	Kakatiya Institute of Technology & Science, Warangal
Assistant Professor (sr.)	July 2010 to	Feb. 2016	Kakatiya Institute of Technology & Science, Warangal
Assistant Professor	June 2002	July 2010	Kakatiya Institute of Technology & Science, Warangal

RESEARCH INTERESTS - Modern Machining processes, Design of experiments, Response surface methodology, Quality engineering, Optimization, Composites, tribology.

SEMINARS/WORKSHOPS ATTENDED

1.	MHRD sponsored two day workshop on Developing OER-enabled e-learning courses using Moodle, 18 th -19 th March, 2017, NIT Warangal
2.	ISTE sponsored one week FDP on Quality assurance in Higher Educational Institutions and Industries, 19 th -23 rd July 2017, KITS Warangal
3.	One week FDP on Renewable energy technologies and distributed generation, 22 nd -27 th April,2017, KITS Warangal
4.	Designing and developing flipped classroom e-learning instruction for engineering and science education: addressing the use of educational technology in Higher Education, NIT Warangal, 9 th May-18 th May, 2016
5.	Effective functioning of an autonomous institution, KITS Warangal, 17-18 Feb. 2015.
6.	Teacher's role in an autonomous institution, KITS Warangal, 29 th Nov. 2014
7.	Beneficial applications of Ionizing radiation, KITS Warangal, 8-9 Feb. 2014
8.	Precision manufacturing and measurements: Current trends and challenges (PMMCTC), NIT Warangal, 18-20 March 2012.
9.	Advanced finite element applications in design and manufacturing systems, JNTU, Kakinada, 26-27 April 2012
10.	Optimization for Engineering design, IIT Madras, Chennai. 3-7 Sept. 2012
11.	Optimization Applications in Mechanical Engineering, IIT Madras, Chennai. 3-7 Oct. 2011
12.	World Class Manufacturing, Institute of Public Enterprise (IPE), Osmania University, Hyderabad, 12-24 Dec. 2011.
13.	Failure Analysis of Industrial Components, IIT Madras, Chennai, 28-29 Oct. 2011.
14.	Advanced Manufacturing Systems, JNTU, Kakinada, 25 th March, 2009
15.	Innovative Quality Practices - Six Sigma and Robust Design For e-Business Excellence, M S Ramaiah Institute of Technology, Bangalore, 10-14 March, 2008.

PUBLICATIONS	
Publications in Refereed Journals	
No	Details
1.	U. Shrinivas Balraj, "An hybrid approach for multi-response optimization of rotary electrical discharge machining of nickel super alloy", <i>Materials Today: Proceedings, 2019</i> (Accepted)
2.	U. Shrinivas Balraj & P. Sreedhar, "An investigation on tensile strength of friction stir welded dissimilar aluminium alloys" <i>Materials Today: Proceedings, 2019</i> (Accepted)
3.	U. Shrinivas Balraj and A. Kumar, "Experimental Investigation on electrical discharge machining of RENE80 nickel super alloy", <i>International journal of Machining and Machinability of Materials</i> , vol.18, Nos. 1/2, pp.99-119, 2016.
4.	U. Shrinivas Balraj, "Mathematical modeling and multi-criteria optimization of rotary electrical discharge machining process", <i>Journal of Physics</i> , Vol.62, pp.1-7, 2015.
5.	U. Shrinivas Balraj, "Machinability study on drilling of Al-7075/Al ₂ O _{3p} /GR _p hybrid metal matrix composites", <i>Indian Journal of Engineering</i> , 13(33), 422-428, 2016
6.	U. Shrinivas Balraj & P. Anitha, "Dry Sliding Wear Performance of Al-7075/Al ₂ O _{3p} /Gr _p Hybrid Metal Matrix Composites", <i>Materials Today: Proceedings</i> , 2015.
7.	U. Shrinivas Balraj, A. Kumar and A. Gopalakrishna, "Performance analysis of electrical discharge machining on RENE 80 Nickel Super Alloy using statistical tools", <i>International journal of Machining and Machinability of Materials</i> , vol.15, Nos. 3/4, pp.2014.
8.	U. Shrinivas Balraj and A. Gopalakrishna, "Multi-objective optimization of EDM process parameters using Taguchi method, principal component analysis and grey relational analysis", <i>International journal of Manufacturing, Materials and Mechanical engineering</i> , Vol. 4(2), pp.29-46, 2014.
9.	U. Shrinivas Balraj and A. Gopalakrishna "A study on white layer thickness and surface crack density in rotary EDM of RENE80 nickel super alloy", <i>Journal of Applied Mechanics and Materials</i> , Vols. 592-594, pp. 23-27, 2014.
10.	U. Shrinivas Balraj, A. Kumar and A. Gopalakrishna, "Optimization of parameters in electrical discharge machining of RENE80 nickel base super alloy using Taguchi-grey relational analysis", <i>Reason-A Technical journal</i> , Vol. 12, pp. 76-86, 2013.
11.	U. Shrinivas Balraj, K. Eswaraiah and S. Chandramouli, "Optimization of electrical discharge machining process parameters using Taguchi method", <i>International journal of Advanced Mechanical Engineering</i> , Vol. 4(4), pp.425-434, 2014.

12.	U. Shrinivas Balraj, "Application of six sigma approach to motor and pump manufacturing industry", <i>International journal of Emerging Engineering Research and Technology</i> , Vol.2, Issue 6, pp.18-23, 2014.
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Publications in Refereed Conference Proceedings

No	Details
1.	"Parametric Optimization of Laser Machining Process using Teaching Learning Based Optimization", <i>International conf: Recent Trends in Science, Technology, Engineering and Management 2019 (ICRSTEM'19)</i> , JITS, Narsampet, 10 th -12 th March, 2019.
2.	"Analysis and Modeling of wear characteristics of Al7075/Al ₂ O ₃ P /Gr _P hybrid metal matrix composites", <i>International conf: AIMTDR-2016</i> , College of Engineering, Pune (COEP), Pune, pp. 1838-1842, 16-18 th Dec. 2016.(ISBN: 978-93-86256-27-0)
3.	"Machinability study on drilling of Al7075/Al ₂ O ₃ P /Gr _P hybrid metal matrix composites", <i>Trends in Industrial and Mechanical Engineering</i> (ISBN: 978-93-84935-68-9), NIT-Bhopal, pp.120-27, 2016.
4.	"Application of entropy method, principal component analysis and grey based Taguchi method for multi-objective optimization rotary electrical discharge machining process of nickel base super alloy", 1 st International conference on Advanced Production And Industrial Engineering (INCAPIE-2015), 21-22 nd Feb. 2015, NIT-Trichy, pp. 251-255
5.	"Optimization of electrical discharge machining of AISI H13 tool steel", National conference on Advances in Mechanical Engineering (AIM-2015), Vasavi College of Engineering, Hyderabad, 1-2 May 2015, PP. 23-28.
6.	"Grey based Taguchi method for optimization of rotary electrical discharge machining process", International conference on ICARMMIEM-2014 (ISBN No. - 978-93-82338-97), CJITS, Jangaon, 28-29 January, 2014, pp.6-11.
7.	"Comparative study of standard and rotary electrical discharge machining for RENE80 Nickel super alloy", National conference on emerging trends in Mechanical Engineering-ETIME-2014 (ISBN-978-93-83635-55-9), Osmania University, Hyderabad, 28-29 Dec. 2014, pp. 231-235.
8.	"Multi-response optimization of rotary EDM of RENE80 nickel super alloy", in national conference on NFME 2K14, JNTUK, Kakinada, 18 th -19 th July, 2014, pp. 217-222.
9.	"analysis of electric discharge machining of RENE 80 Nickel super alloy using various statistical tools", in 2 nd international conference INCAMA- 2013, Kalasalingam university, Krishnakoil, 28-30 th March, 2013, pp.532-538
10.	"Optimization of Electric Discharge Machining of RENE 80 Nickel Super Alloy using Taguchi Method", in 2 nd international conference on ICAMB-2012, VIT University, Vellore., 9-12 Jan.2012, pp.391-396

11.	"Some studies on rotary electrical discharge machining of RENE80 Nickel super alloy", 4 th International & 25 th AIMTDR conference on Innovation for sustainable manufacturing, Jadhavpur University, Kolkata, 14-16 th Dec. 2012, pp. 447-452.
12.	"Mathematical modeling of Electric Discharge Machining process parameters using Response Surface Methodology", in international conference on ICMPC-2012, GRIET, Hyderabad, 10-11 th March 2012, pp.235-242
13.	"A Study on Response Surface Methodology-An Empirical Modeling Tool", in national conference "TIME-10" at KITS, Warangal, 30 th Dec. 2010, pp. 91-98.
14.	"Six Sigma as the Best Manufacturing and Non-manufacturing Management Practice - An Insight", in national conference "TIME-06" at KITS, Warangal, 29-30 th Dec.2006.
15.	"Quick Tapping Machine using Friction Drive" in national conference on Advanced Materials & Manufacturing Techniques AMMT-2004, JNTU Hyderabad, 8-9 th March, 2004.

SEMINARS /WORKSHOPS ORGANIZED						
No	Name of the Topic	Audience	From	To	days	Resource persons/organizations
1.	New Pedagogic Techniques in Technical Education" during <i>(MHRD sponsored, PMMMNMT scheme)</i>	Faculty (50)	26 th March, 2018.	Feb.-3 rd March, 2018	06	TLC, NITW & ETC, KITSW
2.	Instructional Design and delivery methods in Engineering institution <i>(MHRD sponsored, PMMMNMT scheme)</i>	Faculty (50)	1 st May, 2017	6 th May, 2017	06	TLC, NITW & ETC, KITSW
3.	Developing Moodle-enabled dynamic learning courses (ISTE Sponsored)	Faculty (25)	10 March, 2018.	11 th March, 2018.	02	ICFAI University, Hyderabad
4.	Smart Mechanical Systems	Students 130	4 th Oct. 2018	5 th Oct. 2018	02	Faculty of KITS Warangal
5.	Teaching- Learning process and educational technology tools	Faculty (140)	27 th July, 2017	-	01	KITS Warangal

6.	Ways of Effective Students Counseling	Faculty (140)	11 th July, 2015	-	01	Director, KITS Warangal
7.	Teacher's Role in an Autonomous Institution	Faculty (160)	29 th Nov. 2014	-	01	KLU, Vijayawada, GITAM Hyd..
8.	Effective Functioning of an Autonomous Institution	Faculty (180)	17 th Feb. 2015	18 th Feb. 2015	02	NIT Warangal, OU, Hyd., KLU, Vijayawada.
9.	CNC programming & Machining	Students (100)	13 th Dec. 2014	-	01	KITS Warangal
10.	Composite Materials	Students (125)	14 th Dec. 2014	-	01	KITS Warangal
11.	Modeling and analysis	Students (135)	18 th Dec. 2014	19 th Dec. 2014	02	KITS Warangal
12.	IC Engines (Assembly & Disassembly)	Students (150)	20 th Dec. 2014	-	01	KITS Warangal

PATENTS	
<i>NIL</i>	
AWARDS : NIL	
S.No	Details

PROFESSIONAL AFFILIATION	
S. No.	Details
1	<i>Member. Indian society for technical education, MISTE.</i>

COURSES TAUGHT				
Undergraduate Level				
Courses Taught			Currently Teaching	
	Course	Semester, Year, Branch	Course	Semester, Year, Branch
1.	Computer Integrated Manufacturing	Final B. Tech.	<i>PRODUCTION & OPERATIONS MANAGEMENT</i>	<i>B.Tech. ME-V semester</i>
2.	Industrial Engineering	Final B. Tech. (Mech.)	<i>MACHINE Drawing</i>	<i>B.Tech.- III Sem</i>
3.	Production Management	Third B.Tech (Mech./Prod.)		
4.	Manufacturing processes	Second B.Tech.		
5.	Machine Tools	Second B.Tech.		
6.	Total Quality Management	Final B. Tech.		
7.	Mechatronics	Final B. Tech.		
8.	Mechanical Measurements & Metrology	Third B. Tech (Mech./Prod.)		
9.	Numerical Control of Machine Tools	Final B. Tech.		
10.	Production Drawing	Third B. Tech		
11.	Machine Drawing	Second B.Tech.		
12.	Engineering Drawing	First B.Tech		
13.	Principles of metal cutting	Third B. Tech.		
14.	Metrology and instrumentation	Third B. Tech.		
15.	Industrial Engineering	Final B.Tech.		

UNDER GRADUATE (B. TECH.) PROJECTS GUIDED: 14

	Title	Year
1.	Optimization of drilling of Al7075/Al ₂ O ₃ /SiC _p metal matrix composites using different techniques	2017-18
2.	Application of six sigma methodology to higher educational Institute	2016-17
3.	Evaluation of mechanical properties of Al6061/Al ₂ O ₃ metal matrix nano-composites (MMNC)	2016-17
4.	Production and investigation of Mechanical properties of aluminium metal Matrix micro composites	2015-16

5.	Rotary electrical discharge machining of Ti-6Al-4V super alloy	2014-15
6.	Machinability study on drilling of Al7075/Al ₂ O ₃ /SiC _p metal matrix composites	2014-15
7.	Multi-objective optimization and surface integrity study in rotary EDM of nickel super alloy	2013-14
8.	Optimization of machining parameters in rotary Electric discharge Machining (REDM)	2012-13
9.	Multi-objective optimization of EDM using non-dominated sorting genetic algorithm Genetic Algorithm	2011-12
10.	Optimization of Electro discharge Machining Process of Nickel super alloy using Taguchi method.	2010-11
11.	Mathematical Modeling of Electro discharge Machining Process using Response Surface Methodology.	2009-10
12.	A Genetic Algorithm approach for the optimization of Aggregate Production Planning	2008-09
13.	Finite Element Analysis of a Turbine Rotor Blade	2007-08
14.	Simulation of facility layout using Pro-Model	2006-07

POST GRADUATE (M. TECH.) PROJECTS GUIDED:07

No	Title	Year
1.	Design and analysis of pump blade using ANSYS software	2017-18
2.	Concept proving of hybrid honeycomb structures for noise mitigation	2016-17
3.	Approach to accomplish RoHS compliance in monitoring and control of instruments	2015-16
4.	Study of mechanical and Wear properties of Al7075/Al ₂ O ₃ /SiC _p metal matrix composites	2014-15
5.	Converting metallurgical grade silicon to solar grade silicon through electrochemistry route	2013-14
6.	Fault diagnosis of forced draft fans through ultrasonic diagnostic instrument	2010-11
7.	Design and optimization of EDM process parameters using regression analysis.	2012-13

CURRICULUM DESIGN- 06

- *Mechatronics*
- *Modern Machining Processes*
- *Measurement and Instrumentation*
- *Total quality management*
- *Design of Experiments*
- *Engineering drawing*

LAB ESTABLISHMENT/DEVELOPMENT-

- Strengthened Mechatronics laboratory with CMAS mechatronics kit (2018-19, Rs. 2 Lakhs)
- Strengthened machine shop with rotary EDM attachment & drill tool dynamometer (2012-13, Rs. 1.55 Lakhs)
- Strengthened metrology lab with Profilometer, digital gear tooth thickness vernier caliper, digital micrometers, etc. (2010-11, Rs. 0.35 Lakhs)

GUEST/EXPERT LECTURES DELIVERED : 11

S. No	Title of Lecture/Academic session	Title of conference/seminar/FDP/etc	Date of presentation	Organised by (institute)	Whether International/National/State
1	Technology tools for use in classroom teaching	MHRD sponsored one week FDP on - New pedagogic techniques in Engineering Education.	26 th Feb. - 03 March, 2018.	Educational Technology Centre (ETC), KITSW in association with TLC of NITW	National
2	Comparison of processing methods of nano-composites	One day Technical meet on -materials & materials engineering	6 th Dec. 2018	Nava Bharath Ventures Ltd. & IIM, Paloncha chapter	International
3	Rubrics	MHRD sponsored- FDP on -Instructional design and delivery methods in Engineering Institution	1 st -6 th May, 2017	Educational Technology Center (ETC) in association with TLC of NITW	National
4	Multi-objective Optimization Techniques	one week FDP on -Research Methodology and Computational Techniques-	27 June-01 July, 2016.	Department of Mechanical Engineering, KITS Warangal	National
5	Enhancing Properties of Composite Materials	ISTE sponsored one day workshop on Composite materials- Sumshodhini-17	16 th Feb., 2017	Department of Mechanical Engineering, KITS Warangal	National

6	Pathologies of Teaching-Learning Process	one week FDP on Signal processing and its applications	20 th December, 2016	Department of ECE, KITS Huzurabad	National
7	Teaching-Learning Process & Educational Technology Tools	A one day seminar on teaching-learning process	23 July, 2016.	Educational Technology center, KITSW	National
8	Metal matrix composites	Pre-conference symposium on Composites	14 th December 2014.	Department of Mechanical Engineering, KITS W	National
9	Lecture on projection of points	One week FDP on ENGINEERING DRAWING	27 th Feb. - 5 th March, 2018	Dept. of Mechanical Engineering	National
10	Training on Mechatronics laboratory	One week orientation course - training on mechanical laboratories		Dept. of Mechanical Engineering	National
11	Relevance of mechanical engineering to electronics & communication engineering	Two week orientation /induction program for first year students	19 th - 31 st July 2019	Dept. of Mechanical Engineering KITSW	National

ADMINISTRATIVE WORK/COMMITTEES/LAB INCHARGES:

- 1) **Faculty In charge - Educational Technology Center (ETC)**, 2014-till date
- 2) **Departmental Coordinator** - NAAC committee, 2017-18
- 3) **Coordinator NBA** - 2018 -till date
- 4) **Member** - BoS, Mechanical Engineering, 2018-19
- 5) **Member** - NBA committee, 2015-16
- 6) **Member** - Department academic advisory committee, 2016-till date
- 7) **Convener- Project Evaluation Committee** for undergraduate mechanical engineering students. 2006 – 08, 2017-18
- 8) **Chairman** - Mini-project evaluation committee, 2016-17
- 9) **Coordinator - Mechanical Engineering students' association-MESA**, 2014-2016
- 10) **Coordinator-** For Mechanical Department in Sunshodhini-2016-and Pre-symposium workshop-IGNOTRYST, March-2016
- 11) **Coordinator** -National level students technical symposium-*Yantraang'14*, 26 - 27th December, 2014

12) **Faculty Advisor - SAEINDIA KITS Collegiate Club**, 2008-09, 2009-10

We were instrumental in establishing the SAEINDIA collegiate club in our college in 2008 and enrolled a record break of 190 students in south India. Our team 'Maiden Mob' stood 13th position at national level competition in SAE-BAJA 2010 conducted at Indore, Bhopal and 1st rank in Andhra Pradesh.

13) **Lab In charge - Mechatronics Lab**, 2014-till date

14) **Lab In charge - Machine shop**, 2012-2014.

15) **Lab In charge - Measurements and Metrology Lab**, 2006-2010.

16) **In charge - Time Tables** for undergraduate students. 2010-12.

17) **Convener- Project Evaluation Committee** for undergraduate mechanical engineering students. 2006--08.

18) **Coordinator** - Mechanical Engineering Students Association (MESA), 2008-09.

19) Member- Organizing committee of 3rd national conference on 'Trends in Mechanical Engineering - (TIME-2006)', 29th & 30th Dec. 2006.

20) Member- Organizing committee of national student level technical symposium 'Mechovision-2005', dated 29th & 30th Dec. 2005.

21) Member- Organizing committee of national technical symposium 'Sumshodhini-2005' sponsored by Indian Society for Technical Education (ISTE) Students Chapter, Warangal dated Feb. 25th & 26th, 2005.

22) Assisted the administration in verification of sessional awards, stock verification, preparation of purchase and developmental proposals for laboratories and library.

23) Organized two week south Indian industrial tour for pre-final year students in 2008.

3. **INDUSTRY EXPERIENCE : 1.5 years**

- Worked as **quality assurance engineer in Laxmi Hydraulics Pvt. Ltd.**, an ISO-9001 certified company and manufacturer of Induction Motors (0.25-75 HP), Geared Motors, Flameproof Motors, FHP Motors, Domestic and agricultural pumps in Solapur.
- Was responsible for analysis of data collection, identifying vital few major causes, analysis of data, improving the processes, handling customer complaints, rework/rejection/concession/acceptance of products and third party inspection.
- Given field service to companies like Voltas Mumbai, Ingersoll-Rand Bangalore, Praga machine tools Hyderabad, Kirloskar Pune etc.
- Undergone training on SIX SIGMA, 7 SQC tools, SPC, etc.
- Selected to coordinate 3 six sigma projects and shown significant results.

Signature of the faculty