



**B M S College of Engineering  
(BMSCE)**



**GLOBAL INITIATIVE OF ACADEMIC NETWORKS  
(GIAN)**

# Development concepts for future Imaging and Image Guided Surgeries - Exponential Technologies and Reverse Innovation

**Feb 8 to 14, 2019**

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## Overview

*LEARN, PLAY, PARTICIPATE, INNOVATE, VERIFY, ADAPT, STARTUP — a seminar on successful concepts for Medical Technology developments employing Exponential Technologies, Design Sprints, Innovation Games, and much more.*

Exponential technologies are generally described as something that will—in a given time period—double data generation/evaluation and/or half the associated cost with it. The terminology is actually only proven for the Information and communication technology (ICT) segment at the moment, where according to Moore's law the complexity of processors and the cost per transistor follow that path for many decades now. An example from Medical technology is the cost of genome sequencing that has dropped from millions to thousands and now to under USD 100 within a little more than a decade. In many other areas there are potential and hope that certain technologies could lead to significant clinical knowledge gains and procedure improvements combined with cost reductions. But is this just a hype or something that in combination with other emerging technologies could really provide solutions for the problems that we will face in present and future healthcare delivery? Specifically, the increasing life expectancy and the ageing societies in combination with less and less available healthcare staff, ever increasing cost associated with healthcare delivery/products and services, or the inequalities between rural and urban areas particularly in developing nations that need to be addressed urgently.

This program will present the potential impact of these technologies — dedicated to Medical Technology product and service ideas — on the future challenges of healthcare delivery with a particular focus on reverse innovation, where new technologies and delivery approaches will be first implemented in developing nations before being accepted and adopted by the developed world. It will also point out some changes that need to be implemented by universities for the education of future medical technology developers and the effect that could have on entrepreneurial opportunities.

The I3EME approach — Identify, Invent, Implement by Engineers, Medical Staff, and Economists — developed by the lecturer will be used as base concept.

Course participants will learn the topics through lectures and hands-on work combined with team assignments, an introduction into design sprints, agile thinking, and several other innovation games.

This will be an intense lecture series - be prepared to invest the entire day plus a little bit on every lecture day. You will also be asked to prepare a presentation and poster of a relevant assignment that will be discussed and improved during the lectures.

<b>Dates:</b> <b>Venue:</b>	<b>Feb 8 to 14, 2019</b> <b>B M S College of Engineering, Bull Temple Road, Bangalore-560019</b>
<b>You Should Attend If...</b>	<ul style="list-style-type: none"> <li>▪ You are a research scientist or practicing engineer or industry personal in the field of Biomedical, Medical Electronics, Biotechnology, Electronics, Electrical, Instrumentation and allied area interested to learn how to identify Unmet Clinical Needs and subsequently invent meaningful problem solutions.</li> <li>▪ You are Engineer or doctor or MedTech Entrepreneur interested to learn application of exponential technologies and reverse innovation in your profession or who is interested in learning successful innovation generation concepts</li> <li>▪ You are a student or faculty from academic institution interested in learning how to do research and work on topics with a high social and medical impact</li> <li>▪ Your are generally interested in future technologies and their impact on healthcare delivery, as well as on utilising these technologies to work on service and product solutions for specific local, regional or dedicated needs</li> </ul>
<b>Schedule</b>	<p>Day1: <b>(Friday 8<sup>th</sup> February 2019):</b> Introduction to Healthcare Innovation and Exponential technologies, Business Model and Value Proposition Canvas plus Design Thinking, Assignment, DESIGN SPRINT, Home work.</p> <p>Day2: <b>(Saturday 9<sup>th</sup> February 2019):</b> Introduction to Healthcare Regulation and IP, Biodesign, Lean Engineering and Disruption, DESIGN SPRINT II plus Biodesign Advanced - Identify, Invent, Implement.</p> <p>Day3: <b>(Monday 11<sup>th</sup> February 2019):</b> Healthcare Financing and Intellectual Property, Minimal Viable Prototype and Innovation Segments; Innovation Games and Conceptual Blockbusting, DESIGN SPRINT III.</p> <p>Day4: <b>(Tuesday 12<sup>th</sup> February 2019):</b> Start-Up Basics, Healthcare Business Models, Case Studies about CIME Incubates, DESIGN SPRINT IV.</p> <p>Day5: <b>(Wednesday 13<sup>th</sup> February 2019)</b> Academicians and alumni as Incubates, Summary and last words to FINAL Presentations and Assessment, Student Incubation models and success stories, Case studies of Student entrepreneurs, DESIGN SPRINT V and Final Homework.</p> <p>Day6: <b>(Thursday 14<sup>th</sup> February 2019)</b> Seminar Summary, Final Presentations (DESIGN SPRINT's) and Poster Session, Short Assessment - followed by a joint Dinner with Participants and professors.</p>
<b>Fees</b>	<p>The participation fees for taking the course is as follows:</p> <ul style="list-style-type: none"> <li>• <b>Participants from abroad: US \$500</b></li> <li>• <b>Industry/ Research Organizations: Rs.5,000/-</b></li> <li>• <b>Academicians/ Faculty: Rs. 2,500/-</b></li> <li>• <b>PhD Students: Rs. 2,000/-</b></li> <li>• <b>UG/PG Students: Rs. 1,000/-</b></li> </ul> <p>The above fee includes all instructional materials, lectures, tutorials, laboratory usage charges internet facility and food/tea/coffee during the event.  Number of participants are limited to 50 only.  The participants will be provided with accommodation based on availability on payment basis.</p>
<b>Bank Account Details</b>	<p>Payment to be made through <b>NEFT/WIRE TRANSFER</b>  Name of the Account Holder: <b>GIAN -ML</b>  Account Number: SB A/C No: <b>50458452319</b>  Bank &amp; Branch: <b>Allahabad Bank, Hanumanthanagar</b>  Branch <b>IFSC Code: ALLA0212011</b>  <b>MICR Code:560010007</b>  The participants will be provided with accommodation based on availability on payment basis.</p>

# The Faculty



**Prof. Micheal Friebe** has been involved in diagnostic imaging and image guided therapeutic products and services for more than 25 years, as founder / innovator / CEO / investor, and as scientist. After completion of an electrical engineering degree in Germany he spent 5 years in the US as R&D Engineer and Product Manager at MRI and Ultrasound device manufacturer in the Bay Area. In that time, he also graduated with a MSc. in Technology Management from Golden Gate University in San Francisco. In 1993 he returned to Germany to start his first company (Mobile MRI services) and work in parallel on his PhD in Medical Physics (University Witten, Germany, 1995). Since that time, he has started more than 15 companies, 5 of them as major shareholder / CEO and with that is very enthusiastic about teaching innovation generation topics and Medical Technology entrepreneurship. **Dr. Friebe currently is Fellow and affiliated professor with the chair for Computer Aided Medical Procedures (CAMP) at TU München, and a full professor of Image Guided Therapies at the Otto-von-Guericke-University in Magdeburg, Germany ([www.inka-md.de](http://www.inka-md.de)).** He is listed inventor of more than 85 patent applications and the author of numerous journal papers and congress abstracts. Dr. Friebe currently is a Board Member of three MedTec companies, as well as investment partner of a medical technology startup-fund. He is very passionate about nature, mountains, his family, and working with young people. Since 2016 he is a Distinguished Lecturer of the IEEE EMBS and a Senior Member of IEEE.



**Dr H N Suma** is currently the Professor in the department of Medical Electronics, BMSCE, Bangalore. She holds a UG Degree in Electronics & Communication from MCE, Hassan. Her PG Degree is in Bio-Medical Instrumentation from SJCE, Mysore. She holds a PhD from Mysore University. Her PhD thesis title was "Pattern Recognition Techniques for Regionalizing the Activity Patterns of the Human Brain using functional Magnetic Resonance Imaging (fMRI) data". She has 30 publications to her credit in international and national journals and conferences. She has undertaken collaborative projects with National & International Institutions/Hospitals: Biomedical Engineering school-Stanford University, FOETH-Oxford University, IISc, KIMSH, Raman Research Institute, NIMHANS to name a few. She has executed two funded projects. She is the Principal Investigator for two funded projects from DST and VGST. Her Research Interests are: Medical Imaging, Brain Mapping, Brain Warping, Neural Networks and Pattern recognition. She also serves as Academic Council Member for few autonomous colleges.



**Abhishek Appaji M** is Assistant Professor in the Department of Medical Electronics, BMS College of Engineering (BMSCE), Bangalore, India. He is a graduate from Massachusetts Institute of Technology (MIT) Global Entrepreneurship Bootcamp specialized in New Ventures Leadership and was invited to talk at MIT Beyond Food Bootcamp. He obtained his Bachelor of Engineering in Medical Electronics with University Rank from BMSCE and Master of Engineering (M.E) in Bioinformatics from UVCE, Bangalore. He is pursuing his research in Medical Image Processing from Maastricht University, the Netherlands. He is currently the Chair of IEEE Young Professionals Bangalore Section and Advisor for IEEE EMB BMSCE Chapter. He is co-founder of Glucotek Inc, Australia, a startup in Medtech space. He has also worked as research associate in Centre for Nanoscience and Engineering (CeNSE), Indian Institute of Science (IISc), Bangalore. He has two patents filed and more than 30 International/National journal publications and conferences to his credit. He has been a part of more than 45+ Invited expert talks in various conferences, Forums, and events. He has renowned laurels including International Best paper Award in Malaysia, MGH CamTech Jugadathon Awards, Gandhian Young Technological Innovation Award, Elderly care Hackathon (the Netherlands), Winner of Class 5 Massachusetts Institute of Technology (MIT) Global Entrepreneurship Bootcamp, etc.



Course

Coordinators:

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