MEMBERS PRESENT:

1. Prof. D. Thukaram, Chairman
2. Sri. M. Krishnaswamy, Member
3. Dr. K. Mallikharjuna Babu, Principal & Convenor

NODAL OFFICERS/CO-ORDINATORS PRESENT:

1. Dr. G. N. Sekhar, TEQIP Co-ordinator I
2. Dr. L. Ravikumar, TEQIP Co-ordinator-II
3. Dr. K. R. Suresh, Nodal Officer – Financial Aspects
4. Dr. M. S. Dharmaprapakash, Nodal Officer- Procurement
5. Dr. H. S. Guruprasad, Nodal Officer - Academic Activities
6. Dr. K. Guruprasad, Nodal Officer - Equity Assurance Plan Implementation
7. Dr. C. Lakshminarayana, Nodal Officer - Equity Assurance Plan Implementation
8. Dr. M. C. Sampath Kumar, Nodal Officer-CW including EM
9. Dr. M. Indiramma, Coordinator-IIIC
10. Dr. S. Gowrishankar, Nodal Officer - Academic Activities
11. Sri. C. T. Puttaswamy, Nodal Officer-CW including EM
12. Dr. M. Ramachandra, Principal Investigator & Co-ordinator, CoE
13. Dr. S. Srinivas, Principal Investigator, CoE
14. Dr. Murugendrappa, Principal Investigator, CoE
15. Dr. Chandashree Das, Principal Investigator, CoE

MEMBERS PRESENT ON INVITATION:

Dr. Martin Jebraj, Director (R&D)

The Principal and the convenor of the sub-committee of BOG welcomed the members for the meeting.

1. Read and record the minutes of the seventh meeting of the BOG sub-committee held on 11th September 2013.

The minutes of the seventh meeting of the BOG sub-committee held on 11.9.2013 were read and recorded [Annexure-1].
2. Study visit to Universities at Europe, USA, Canada, & Australia by the faculty
(a) Presentations by the faculty members on their foreign visit:
   Dr. K.Mallikharjuna Babu, Principal, BMSCE; Dr. G. N. Sekhar, Vice principal; Dr. M. Ramachandra, Dr. L. Ravikumar, Dr. K. R. Suresh and Dr. M. S. Dharmaparaksh have submitted reports on their visits and made brief presentations before the subcommittee [Annexure-II]. While appreciating the presentations made by them, the Chairman, BOG-subcommittee asked the members to continue their efforts to establish and formalise the collaborations with the identified collaborators.

(b) Transfer of Expenditure of visit to European countries from TEQIP II to COE.
The sub-committee of BOG noted that the visit of Dr. G. N. Sekhar & Dr. M. Ramachandra to the European Universities was towards identifying the collaborators on the theme of CoE i.e., for R&D on Advanced Materials Research, and granted permission to meet the expenditure incurred towards the same under sub-component 1.2.1 of TEQIP-II.

(c) Status of visit to Australian Universities:
The TEQIP Coordinator-I informed the members that the SPFU, GOK is facilitating the visit of delegation from Karnataka to the universities in Australia during January/February 2014 and as per the earlier approval of the committee (i) Dr.M.Rajyalakshmi, Professor-BT, (ii) Dr.H.N.Sumu, Professor-ML, (iii) Dr.Samitha Maitra, Professor-CH (iv) Dr.Ravishankar Deekshit, Professor-EEE and (v) Dr. C. Lakshminarayana, Professor-EE & TEQIP II Nodal Officer[EAP] will be joining the said delegation from BMSCE.

3. Review of progress of procurement:
The members took a note of the procurement status as mentioned below:

<table>
<thead>
<tr>
<th>Description</th>
<th>Value ( Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Allotment under Procurement</td>
<td>Rs.560 Lakhs</td>
</tr>
<tr>
<td>Procurement completed</td>
<td>Rs.137 Lakhs</td>
</tr>
<tr>
<td>Purchase orders released &amp; waiting for delivery</td>
<td>Rs.123 Lakhs</td>
</tr>
<tr>
<td>Initiated and In process</td>
<td>Rs.131 Lakhs</td>
</tr>
<tr>
<td>Packages to be initiated</td>
<td>Rs.169 Lakhs</td>
</tr>
</tbody>
</table>
(A) Shopping:

<table>
<thead>
<tr>
<th>Description</th>
<th>Value (Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Allotment (under Shopping) (64 Items)</td>
<td>Rs.168 Lakhs</td>
</tr>
<tr>
<td>Procurement completed (11 Items)</td>
<td>Rs.25 Lakhs</td>
</tr>
<tr>
<td>Purchase orders released &amp; waiting for delivery (9 Items)</td>
<td>Rs.28 Lakhs</td>
</tr>
<tr>
<td>Initiated and In process (13 Items)</td>
<td>Rs.68 Lakhs</td>
</tr>
<tr>
<td>Packages to be initiated (31 Items)</td>
<td>Rs.47 Lakhs</td>
</tr>
</tbody>
</table>

(B) Direct Contracting

<table>
<thead>
<tr>
<th>Description</th>
<th>Value (Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Allotment (under Direct Contracting) (22 Items)</td>
<td>Rs.180 Lakhs</td>
</tr>
<tr>
<td>Procurement completed (7 Items)</td>
<td>Rs.112 Lakhs</td>
</tr>
<tr>
<td>Purchase orders released &amp; waiting for delivery (4 Items)</td>
<td>Rs.28 Lakhs</td>
</tr>
<tr>
<td>Initiated and In process (2 Items)</td>
<td>Rs.7 Lakhs</td>
</tr>
<tr>
<td>Packages to be initiated (9 Items)</td>
<td>Rs.33 Lakhs</td>
</tr>
</tbody>
</table>

(C) National Competitive Bidding (NCB)

The members noted that the bids received for the procurement of workstations for the department of ISE and Atomic Absorption Spectrophotometer for the department of Civil Engineering noted below are as per the PMSS norms and approved the issue of purchase order as per the below mentioned details.

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Item</th>
<th>Contract Value (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>WORKSTATIONS [Ref: BM/IS/G/1 Desktop Computer Department of Information Science Engineering]</td>
<td>33,00,000</td>
</tr>
<tr>
<td>2</td>
<td>Atomic Absorption Spectrophotometer [Ref: BM/CV/G/1 AAS-Department of Civil Engineering]</td>
<td>32,00,000</td>
</tr>
</tbody>
</table>

The members also noted that the lowest bids received for the following packages satisfying the specifications have an escalated cost and it is due to enhanced value of US$ and the price was estimated two years back. The Nodal Officer[Procurement] informed the members that escalated price is on line with the current market scenario,
since two of responsive bids for HPLC are in the same range and that the NPIU suggested the procurement with due approval from BOG.

The Nodal Officer [Procurement] also informed the members that in the case of Vector Signal Generator, the sole bid received has a price escalation of 15%. The members noted the details of the bids received for both the items as mentioned below and accorded approval for accepting the bids and to award the contracts.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Item</th>
<th>Estimated Cost (Rs.)</th>
<th>Details of Bids received</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Preparative High Performance Liquid Chromatography System [Ref: BM/BT/G/1 Eq-HPLC Department of Biotechnology]</td>
<td>18 lakhs</td>
<td>Value of Lowest bid is Rs.24,85,000/-, with exemption of Custom duty</td>
</tr>
<tr>
<td>2</td>
<td>Vector Signal Generator and Vector Signal Analyzer loaded with Signal Analysis Software. [Ref: BM/EC/G/4 Department of Electronics &amp; Communication Engineering]</td>
<td>38 lakhs</td>
<td>Value of Lowest bid is Rs.40,20,000/- + taxes</td>
</tr>
</tbody>
</table>

The Nodal Officer [Procurement] brought to the notice of the committee that the bids received for procurement of workstations for the department of CSE are on high end and they are not on par with those received for the department of ISE. The committee after a detailed discussion, ordered for cancelling the same and to re-initiate the steps for calling a fresh NCB.

(D) The Nodal Officer [Procurement] placed a representation of Dr.K.R.Suresh Professor of Civil Engineering before the committee. Dr.K.R.Suresh informed the members that the BOG had accorded approval for the procurement of “Chlorophyll meter, GPS Receiver, leaf area meter and Sensors & Data Acquisition system” at an estimated cost of Rs.9,00,000/- Dr.K.R.Suresh submitted to the committee that he could procure the said equipment through the R & D grant received from VTU and made a brief presentation on the area of further research being carried out by him in collaboration with Sri. Harish Mekali of ECE and requested permission for change in
the list of items proposed to be procured. The committee accorded approval to his request and the authorised Nodal Officer [Procurement] and Principal to incorporate the suitable changes as per the requirement of PMSS:

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Item</th>
<th>Estimated Cost (Rs.)</th>
<th>Approved Mode of Procurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Solar Powered Irrigation System with customised software</td>
<td>4,10,000</td>
<td>Shopping</td>
</tr>
<tr>
<td>2</td>
<td>Design, Firmware development fabrication and supply of PCBs for Advanced Irrigation Scheduling</td>
<td>6,00,000</td>
<td>Shopping</td>
</tr>
</tbody>
</table>

(E) Procurement for the Centre of Excellence in Advanced Materials Research:
Dr. M. Ramachandra, Coordinator for the COE has submitted a report on the status of procurement under the Centre of Excellence in Advanced Materials Research as on 16-11-2013 as noted below:

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Item</th>
<th>Estimated Cost (Rs.)</th>
<th>Approved Mode of Procurement</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Scanning Electron Microscope</td>
<td>1,00,00,000</td>
<td>NCB</td>
<td>Bids are under technical evaluation</td>
</tr>
<tr>
<td>2</td>
<td>Abrasive Water Jet Cutting Machine</td>
<td>90,00,000</td>
<td>NCB</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>XRD Equipment</td>
<td>70,00,000</td>
<td>NCB</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Dual Sputtering Equipment</td>
<td>18,00,000</td>
<td>NCB</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>FTIR Spectroscopy Equipment</td>
<td>9,50,000</td>
<td>Shopping</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Multi-function Printer (2 Nos)</td>
<td>64000</td>
<td>Shopping</td>
<td>Orders placed</td>
</tr>
</tbody>
</table>
The committee considered the request of Dr.V.Murugendrappa, Principal Investigator and Dr. M. Ramachandra, Coordinator for the COE and permitted them to initiate steps for procuring the following additional equipment and asked them to confine to the available budget. Further the committee authorised the Principal and Coordinator of COE to make suitable changes in the list of equipment accordingly following the process of procurement through PMSS.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Item</th>
<th>Estimated Cost (Rs.)</th>
<th>Approved Mode of Procurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UV/VIS Spectro-Photometer</td>
<td>6,75,000</td>
<td>Shopping</td>
</tr>
<tr>
<td>2</td>
<td>Conductivity Measurement Setup</td>
<td>8,00,000</td>
<td>Shopping</td>
</tr>
</tbody>
</table>

4. (a) Teaching Assistantship to PG & MSc (Engg) students

The committee also noted that in response to the circular dated 18.09.2013 calling applications for the award of teaching assistantship, 79 students of I Semester M.Tech & one student of M.Sc(Engg) admitted during 2013-14 as mentioned below had applied for the award of teaching assistantship.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Branch</th>
<th>Total No. of Applicants</th>
<th>SC</th>
<th>ST</th>
<th>OBC</th>
<th>GM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chemical Engineering</td>
<td>10</td>
<td>--</td>
<td>--</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Computer Science&amp;Engineering</td>
<td>2</td>
<td>--</td>
<td>--</td>
<td>02</td>
<td>--</td>
</tr>
<tr>
<td>3</td>
<td>Biomedical Signal Processing</td>
<td>23</td>
<td>01</td>
<td>01</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Transportation Engg</td>
<td>17</td>
<td>02</td>
<td>01</td>
<td>06</td>
<td>08</td>
</tr>
<tr>
<td>5</td>
<td>Environmental Engg</td>
<td>14</td>
<td>02</td>
<td>--</td>
<td>09</td>
<td>03</td>
</tr>
<tr>
<td>6</td>
<td>Computer Network Engg</td>
<td>05</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>05</td>
</tr>
<tr>
<td>7</td>
<td>Digital Communication</td>
<td>01</td>
<td>--</td>
<td>--</td>
<td>01</td>
<td>--</td>
</tr>
<tr>
<td>8</td>
<td>Power Electronics</td>
<td>02</td>
<td>--</td>
<td>--</td>
<td>01</td>
<td>01</td>
</tr>
<tr>
<td>9</td>
<td>Construction Technology</td>
<td>04</td>
<td>01</td>
<td>01</td>
<td>02</td>
<td>--</td>
</tr>
<tr>
<td>10</td>
<td>Machine Design</td>
<td>01</td>
<td>--</td>
<td>--</td>
<td>01</td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>79</td>
<td>06</td>
<td>03</td>
<td>38</td>
<td>32</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MSc(Engg) Students admitted during 2013-14[1st Year]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sl. No.</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>
The committee noted that thirty students of M.Tech program and one student of MSc(Engg) were sanctioned teaching assistantship during the year 2012-13. Except for Mr. Shoeb Mohammed Balabatti, who is in receipt of internship, all others are being extended with the assistantship for their second year study period. The committee also noted that in addition to these, 18 students pursuing their second year PG program [including (i) one student admitted during 2011-12, discontinued and subsequently became eligible for third semester during 2013-14 and (ii) three students who had not opted for assistantship during 2012-13] have also represented for sanction of teaching assistantship for the year 2013-14.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Branch</th>
<th>Total No. of Applicants</th>
<th>SC</th>
<th>ST</th>
<th>OBC</th>
<th>GM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Transportation Engg</td>
<td>8</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Environmental Engg</td>
<td>8</td>
<td>1</td>
<td>-</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Construction Technology</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>18</td>
<td>2</td>
<td>-</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

The committee after perusing the list of students who are eligible for the receipt of teaching assistantship, accorded approval for the sanction of teaching assistantship to all of them with effect from 1st October 2013 to students admitted to I Semester M. Tech during 2013-14 and from the day of commencement of II Year M.Tech classes to the above eighteen students of second Year M. Tech as per the list enclosed at Annexure-III.

The TEQIP Co-ordinator-I placed a representation of Ms. Malvika Priety [GATE qualified] seeking award of teaching assistantship. The committee noted that she was admitted to first Semester M.Tech [Biochemical Engineering] during 2013-14 under Management Quota. The committee asked the TEQIP Coordinator-I to initiate steps to upload her details to AICTE for the award of GATE scholarship, though it is late and authorised the Principal to award teaching assistantship to her, if she fails to get GATE scholarship from AICTE.
The TEQIP Coordinator-I placed another representation of Mr. Harisha C.N., student of second year M. Tech. [Computer Science] seeking award of teaching assistantship. Though he was admitted through sponsored quota, he was constrained to submit his resignation and was relieved from his duties during his first year of M.Tech. itself. Considering his plea that he is finding it difficult to meet the day to day expenses and academic progress, the committee accorded approval for award of teaching assistantship to him as an exceptional case, from the date of commencement of his second year classes.

(b) **Research Assistantship to full time Ph.D. scholars.**

The committee noted that four students have submitted their applications for full time PhD program to the VTU and applications would be called from them for the award of Research Assistantship. The committee authorised the Principal, to award the Research Assistantship to the eligible candidates with effect from 1st December 2013.

5. **Sponsoring Faculty/staff for workshop/training etc., outside the college & conduction of in-house activities**

(a) The committee took a note of the consolidated statement showing the details of permissions accorded by the Sub-committee of BOG by circulation [for the period from 17.7.13 to 11.11.13] for the proposals of faculty & staff members seeking permission to attend various academic programs & conduction of in-house activities placed at Annexure-IV.

(b) The committee accorded approval for deputing the following faculty members with financial assistance as per norms to attend programs outside the college as below:
### EIGHTH MEETING [20.11.2013] SUB-COMMITTEE OF BOG | MINUTES

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Faculty, Designation &amp; Dept</th>
<th>Details of the Program</th>
<th>Place</th>
<th>Workshop/ Conf. Dates</th>
<th>Approx. Expenditure (Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Dr. K. Ganesh, Asst. Professor, Civil Engineering</td>
<td>Paper presentation at Intl. Conference on Structural Engineering and Construction Management (ICSECM-2013)</td>
<td>Kandy, Srilanka</td>
<td>December 13-15, 2013</td>
<td>77,450/-</td>
</tr>
<tr>
<td>3</td>
<td>Dr. B. Kanmani, Professor &amp; HOD, Telecommunication Engg.</td>
<td>Paper presentation in IEEE Intl Conference on MOOC, Innovation and Technology in Education (MITE2013)</td>
<td>Poornima Institute of Engineering and Technology, Jaipur</td>
<td>December 20-22, 2013</td>
<td>35,000/-</td>
</tr>
<tr>
<td>4</td>
<td>Sri. G. Saravana Kumar, Asst. Professor, Mechanical Engineering</td>
<td>International Conference on ASIATRIB 2014</td>
<td>Agra</td>
<td>February 17-20, 2014</td>
<td>39,400/-</td>
</tr>
<tr>
<td>5</td>
<td>Dr. L. Ravikumar, Professor, Mechanical Engineering</td>
<td>International Conference on ASIATRIB 2014</td>
<td>Agra</td>
<td>February 17-20, 2014</td>
<td>39,400/-</td>
</tr>
</tbody>
</table>

(c) The committee also accorded approval for the conduction of in-house workshops proposed as below:

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Department</th>
<th>Title of the Workshop</th>
<th>Workshop Dates</th>
<th>Approx. Expenditure (Rs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>R&amp;D Centre</td>
<td>On line course Delivery System using “A-VIEW” developed for MHRD</td>
<td>November 23, 2013</td>
<td>28,900/-</td>
</tr>
<tr>
<td>2</td>
<td>Mathematics</td>
<td>Two week Workshop on Computational Fluid Dynamics</td>
<td>January 2014</td>
<td>2,50,000/-</td>
</tr>
</tbody>
</table>
6. Appointment of office assistant for the Centre of Excellence:

The committee accorded approval for appointing one office assistant exclusively to handle office works pertaining to the COE.

7. Action Plan to meet the expenditure target:

The committee noted that as per the directions of SPFU, an ‘action plan to achieve target of expenditure for the period from 1st November 2013 to 31st December 2014’ was prepared and placed on the college website with due approval of the Chairman, BOG-Sub Committee [Annexure-V].

8. Conduction of Remedial Classes:

The committee noted that under Equity Assurance Plan, remedial classes are being conducted to weak students. The committee also noted that the department of Mathematics has commenced remedial classes to the I Semester BE students who have scored less than 10 marks out of 25 in CIE. The committee further noted that Dr.M.S.Gayatri is handling the remedial classes during Monday to Friday between 4PM to 6PM and is asked to conduct classes for about 30 hours in this semester. The committee approved the payment of remuneration to Dr.M.S.Gayatri as per the approved TEQIP II norms.

9. Honorarium to officials/staff working in TEQIP cell:

The committee after perusing the proposal submitted by the committee consisting of Dr. L. Ravikumar, Dr. S. Gowrishankar and Dr.H.S.Guruprasad informed them to resubmit the proposal with due calculations and expected expenditure till the end of the project.

10. Conduction of Inter disciplinary Technical Symposium:

The committee considered the proposal submitted by Dr. P. Meena, Faculty of EEE seeking financial assistance for conduction of two day interdisciplinary technical symposium in the college during January/February 2014, facilitating an exhibition of student projects, products by industries, technical seminars and paper presentations by students, interaction between industry and the faculty of various departments at an estimated cost of Rs.13.5 lakhs. The committee after detailed deliberations permitted an expenditure up to Rs. Five lakhs from the TEQIP-II activities under IIIC and asked Dr. Meena to explore funding from other agencies for the balance needs.
11. Proposal for financial aid for fabrication and to compete in SAE international formula student competition:
The TEQIP Coordinator-I has presented the proposal of Dr. K. J. Rathanraj, Professor, IEM seeking financial support to a tune of Rs.14,90,260/-. The said proposal includes registration for the competition, providing an indigenous design, fabricate the vehicle, test for its performance using the skill sets of students of different disciplines and run it in the competition during July 29 to August 3, 2014 at the Hockenheimring, Germany. As per the directions of the committee, Dr. K. J. Rathanraj has made a presentation of the activities proposed. The committee while considering the proposal presented by him, expressed that the proposal is incomplete in terms of identifying the resources and complete budgeting of the activities. The committee asked Dr. Rathanraj, to resubmit his proposal after working out the details as per the suggestions and guidance provided to him by the BOG subcommittee, for its consideration.

12. Any other item with the permission of the chair:
The Principal informed the committee that the second visit of TEQIP mentor is scheduled on 28th and 29th November 2013. Further, he informed the BOG members that an expert committee of NBA is scheduled to visit the college during December 7-9, 2013 and requested them to make it convenient to interact with the expert committee.

13. Reimbursement of Registration fee for Doctor of Science degree:
The committee perused the representation of Dr.G.Varaprasad, Associate Professor of Computer Science & Engineering seeking reasons for rejection of reimbursement of registration fee paid by him to the Tumkur University for the award of Doctor of Science [D.Sc]. The committee asked the TEQIP Coordinator-I to inform him that he was already holding a doctoral degree and did not have any prior permission for reimbursement of registration fee paid towards D.Sc. degree.

The meeting concluded with vote of thanks to the Chair.

PRINCIPAL and
CONVENOR

CHAIRMAN,
BOG SUB-COMMITTEE
MEMBERS PRESENT

1. Prof. D. Thukaram, Chairman
2. Sri. M. Krishnaswamy, Member
3. Dr. K. Mallikharjuna Babu, Principal & Convenor

NODAL OFFICERS/CO-ORDINATORS PRESENT:

1. Dr. G. N. Sekhar, TEQIP Co-ordinator I
2. Dr. L. Ravikumar, TEQIP Co-ordinator-II
3. Dr. K. Guruprasad, Nodal Officer - Equity Assurance Plan Implementation
4. Dr. K. R. Suresh, Nodal Officer – Financial Aspects
5. Dr. H. S. Guruprasad, Nodal Officer - Academic Activities
6. Dr. C. Lakshminarayana, Nodal Officer - Equity Assurance Plan Implementation
7. Dr. M. C. Sampath Kumar, Nodal Officer-CW including EM
8. Dr. M. Indiramma, Coordinator-IIIC
9. Dr. S. Gowrishankar, Nodal Officer - Academic Activities
10. Sri. C. T. Puttaswamy, Nodal Officer-CW including EM
11. Dr. M. Ramachandra, Co-ordinator, CoE

The Principal and the convenor of the sub-committee of BOG welcomed the members for the meeting.

1. **Read and record the minutes of the sixth meeting of the BOG sub-committee held on 16th July 2013.**
   The minutes of the sixth meeting of the BOG sub-committee held on 16.7.2013 were read and recorded [Annexure-1].

2. **Review of project’s progress by an Internal Review Committee:**
   The committee took a note of communication from the SPFU dated 6th June 2013 asking the institution for the conduction of an internal review through a review committee consisting of senior academicians like Institute's Mentor & senior professor of the institution.
The committee opined that the BOG-subcommittee is already reviewing the progress in its periodical meetings and asked the Principal to carry out the review for the month of October 2013. The committee further noted that the visit of the Institute’s Mentor is due for the October 2013.

3. **Assessment of Institutions’ performance:**

   The committee noted that the NPIU has communicated [vide mail dated 25.7.13] all the institutions that a mid-term review has been scheduled during November 1-15, 2013 for assessing the institutions’ performance in the project. The committee also noted that the institutions are required to meet all the eight targets of the key performance indicators mentioned in the letter by 31.10.13 and institutions which fail to meet one or more targets will receive no more funds under TEQIP-II. The committee further noted that the best performing ten institutions would be eligible to receive additional funds up to Rs.5 crore. Performance will be assessed by the percentage of disbursement as against total allocation.

   In this regard, the Principal informed the committee that the institutions in other states have a better chance to compete, compared to the institutions in Karnataka, as the project started one year late in Karnataka.

   The committee observed that out of the first instalment of grants of Rs.200 lakhs, an amount of Rs.191.46 lakhs has been utilised as on 31.8.2013 and also noted that an amount of Rs.100 lakhs has been received as advance from the college funds till the second instalment of grants are released from the SPFU. The committee expressed its satisfaction on the activities that are in progress.

4. **Audit of TEQIP-II accounts as on 31.3.2013 by the Chartered Accountant**

   The committee noted that the audit of accounts of TEQIP-II for the year ending 31st March 2013 has been conducted by Sri.B.N.Jayaram, chartered accountant nominated by the college and perused the audit report dated 15.7.2013 and certified financial statements and accepted the same [Annexure-2].

   The committee also noted that auditors from M/s GRSM & Associates nominated by SPFU have also audited the TEQIP-II accounts for the year ending 31st March 2013.

5. **Deputation of faculty members to Conferences/Training/workshop etc**

   The committee noted that more number of programs is being conducted under TEQIP-II and the members of faculty & Staff of the college is seeking permission to attend more than 2 programs [within India] in a year.

   The committee noted the existing BOG norms that a faculty member can avail financial assistance for participation in a maximum of 2 programs [within India] in a year and one in three years for paper presentation abroad. In view of the targets set forth in the project, the committee resolved to permit the faculty & staff to attend more than 2 programs conducted [within India] during the TEQIP II period.

   After detailed deliberations, the committee decided to maintain status-quo in respect of sponsoring faculty i.e., to extend financial assistance to a faculty member to present research paper abroad, once in three years.
6. Reimbursement of Registration fee for Doctoral of Science degree

The committee reviewed the requisition submitted by Dr. G. Varaprasad, Associate Professor in the department of Computer Science & Engg., seeking reimbursement of registration fee of Rs. 50,000/- paid to the Tumkur University towards D. Sc. degree.

After detailed deliberations, the committee decided not to permit the reimbursement of fee paid by him and also suggested not to encourage such activities in future.

7. Review of Procurement Status:

The TEQIP Co-ordinator-I informed the committee that a paper advertisement would be coming on 12.9.2013 publicising FIVE National Competitive Biddings [NCBs] related to procurement. The committee noted the contents of the advertisement and approved the same.

Based on the submission of the procurement manager, the committee permitted for placing repeat orders for items within a span of three months, after ascertaining that no better products are available in the market at a more competitive price.

The committee accorded approval for the proposed changes/modifications in certain packages of procurement [Annexure-3].

While on the subject, the Program co-ordinator-I submitted to the committee that the R & D director has provided his comments on the proposal submitted by Dr. K. J. Rathanraj, Professor-IM and Sri. C. K. Chandrababu, Associate Professor-ME for the procurement of the Rapid Proto-typing machine and that it is recommended to enhance the estimate and allocation to Rs. 44 lakhs as against the proposed cost of Rs. 32 lakhs to pave way for procuring the equipment with latest developments/specifications as per the market survey and the advice of experts from the GTRE.

The committee approved the proposal in principle and asked the Program coordinator-I to initiate the necessary steps.
8. Meeting the expenses of students for their participation in workshop/conference:
The committee noted that the representatives of MHRD & NPIU, in a meeting of the Principals & Co-ordinators of TEQIP institutions held on 12.8.13 at SPFU, have permitted for meeting the travel expenses & registration fee of students participating in workshop/conference etc. under TEQIP-II subject to approval of BOG.
The committee resolved to permit extension of financial assistance to students participating in workshop/paper presentation in conferences in India. The committee also resolved to consider the financial assistance to student for presenting his/her paper abroad case by case.

9. Representation of Sri. G. Darshan, [M.Tech (DC)] to continue teaching assistantship:
The committee noted that the teaching assistantship of Sri.G.Darshan, student of M.Tech [Digital Communication] was withheld from March 2013 in view of his failure to clear all the subjects of first semester in first attempt. The committee also noted that out of the 4 failed subjects of first semester, the student had cleared 2 subjects in revaluation and has cleared all the subjects of II Semester. Based on the fact that Sri. G. Darshan is eligible to pursue III Semester M.Tech as per the norms of the VTU, without any discontinuity in the course, the committee permitted the payment of the teaching assistantship withheld from March 2013 to Sri.G.Darshan and resolved to continue the award of teaching assistantship for further period of his M.Tech course.
The committee also asked the TEQIP Co-ordinator-I to drop clause No.6 in the Guidelines for the award of teaching assistantship to maintain uniformity with the guidelines of AICTE in continuation of scholarship.
TEQIP Co-ordinator-I submitted to the committee that during the previous academic year, a few aspirants were deprived of teaching assistantship based on the number of teaching assistantships awarded during 2012-13. Further, he submitted that there is enough fund available for awarding teaching assistantship to all the non-GATE & non-sponsored students and sought
permission of the committee to award teaching assistantship to all those who are on the rolls of I & II year M.Tech course during 2013-14.

After deliberations, the committee approved the proposal and ordered for the award of teaching assistantship to all the non-GATE & non-sponsored students who are on the rolls of I & II year M.Tech course during 2013-14.

10. Honorarium to officials/staff working for the TEQIP – II:

The committee took a note of the mail from NPIU dated 7.8.13 clarifying that the institution may provide honorarium to the nodal officers/co-ordinators/staff working for TEQIP-II and the institution shall lay down norms in this regard.

After detailed deliberations, the committee asked Dr. L. Ravikumar, Dr. S. Gowrishankar and Dr.H.S.Guruprasad to submit a proposal to the committee in its next meeting.

11. Award of teaching Assistantship to M. Tech. students receiving Internship:

The committee perused the letter submitted by Mr. Shoeb M.Balabatti, student of III Semester M. Tech. [EC] being offered internship from INTEL. The committee resolved that the students availing internship cannot avail Teaching Assistantship and the choice would be of the student.

The committee also informed the TEQIP Co-ordinator-I to issue a circular notifying the decision of the committee and seek a status report from all the students of II year M.Tech course.

12. Sponsoring Faculty for workshop/training etc., outside the college & conduction of in-house activities:

The committee reviewed the proposals of the faculty members for attending various programs in India and abroad with financial assistance from TEQIP and accorded approval for the same [Annexure-4].

The committee also accorded approval for the conduction of workshop on “Intelligent Machines & Systems” by the department of Mechanical Engineering in the college scheduled during January 2014 at an approximate cost of Rs.3.36 lakhs.
13. Study visits by the Faculty to Universities at Canada & Australia

The committee perused the copy of SPFU mails dtd.8.8.13 & 23.8.13 seeking the deputation of faculty for a study visit/interaction with the faculty members at various universities in Canada and Australia. The committee also took note of the approval by the Principal [Annexure-5] and the proposal sent to SPFU.

The Principal informed the members that as per the approval of the BOG sub-committee in its previous meeting, he will be participating in the Global Engineering Deans Conference [GEDC] at USA during October 19 to November 01, 2013. He also informed the members that during the said visit, he would be visiting Purdue University, Iowa State University, Michigan State University & University at Buffalo, University of Michigan (Ann Arbour) & North Carolina Universities.

Further, the Principal brought to the notice of the committee that the BMSCE is one of the stake holder member of India Platform that promotes interaction among the European Universities and leading Technical Institutions of Karnataka. As a part of this MOU the European Universities visited Indian counter parts in April 2013. In response, the Indian Institutions (a delegation) will be visiting European Universities/Institution during October 2-13, 2013. This event is facilitated & coordinated by the India Platform. From BMSCE, a team of faculty namely Dr.G.N.Sekhar, Vice Principal (representing the Management) & Dr.M.Ramachandra, Professor, Mechanical Engineering Department (subject expert) are being nominated. They are expected to interact with their European counterparts at the universities at Groningen, Ghent, Antwerp and Averio to know the best practices & explore the possibilities for mutual collaborations.

The Principal informed the members that in view of the deputation of Dr.G.N.Sekhar and Dr.M.Ramachandra to India Platform program, it is likely that the duo may be unable to visit the Canadian University as proposed earlier.
After detailed discussions, the committee approved the proposed nominations of faculty members to the countries Belgium, Canada, Australia and USA. The committee authorised the Principal to make necessary changes in the proposed names of nominees subjected to the availability.

14. Release of fund to Centre of Excellence in Advanced Materials Research
The committee took a note of the NPIU letter No.NPIU/TEQIP-II/FIN/23/1058 dated 27.8.13 about the release of Rs.333.33 lakhs [Central + State share] as grants for establishing the CoE in Advanced Materials Research for the year 2013-14 and the amount is yet to be received by the college from SPFU/GOK[Annexure-6]. The committee also noted that a separate SB account at Allahabad bank, Hanumanthananagar Branch has been opened as CoE-TEQIP-II with No.50166755417.

15. Activities of the Centre of Excellence in Advanced Materials Research:
(a) Appointment of Research Assistants:
The committee approved the proposal to appoint one research assistant to work with each of the Co-ordinators/principle investigators of the COE and agreed to appoint two or more research assistants for the said purpose if suitable candidates are available. The committee advised for calling applications through the college website.

(b) Appointment of Senior Research Advisor:
Dr.M.Ramachandra, Co-ordinator, Centre of Excellence (COE) proposed to invite Expression of Interest from the researchers/retired professionals having enough exposure and experience in the research area of Advanced Materials and appoint them as senior research advisors under COE.

The committee approved the proposal and asked the programme co-ordinator to initiate necessary steps by inserting an advertisement in newspaper and also to seek applications through college website.
(c) Procurement of equipment for the Centre of Excellence:

The committee perused the proposals of procurement under COE and approved the procurement of following equipment for establishing the Centre of Excellence in Advanced Materials Research and directed to initiate the process of procurement for the below mentioned items following the norms of the TEQIP-II.

<table>
<thead>
<tr>
<th>SNo</th>
<th>Description of Works/Goods</th>
<th>Estimated Cost (Rs)</th>
<th>Mode of Procurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Scanning Electron Microscope (SEM)</td>
<td>100,00,000</td>
<td>NCB</td>
</tr>
<tr>
<td>2</td>
<td>X-Ray Diffraction analyzer (XRD)</td>
<td>70,00,000</td>
<td>NCB</td>
</tr>
<tr>
<td>3</td>
<td>Abrasive Water Jet machine (AWJ)</td>
<td>90,00,000</td>
<td>NCB</td>
</tr>
<tr>
<td>4</td>
<td>FTIR Spectroscopy equipment</td>
<td>9,50,000</td>
<td>DC</td>
</tr>
<tr>
<td>5</td>
<td>Dual Sputtering Equipment</td>
<td>18,00,000</td>
<td>NCB</td>
</tr>
<tr>
<td>6</td>
<td>Magnetic Stirrer</td>
<td>6,000</td>
<td>Shopping</td>
</tr>
<tr>
<td>7</td>
<td>Rectangular muffle furnace</td>
<td>23,000</td>
<td>Shopping</td>
</tr>
<tr>
<td>8</td>
<td>Heating oven Up to 300° C</td>
<td>25,000</td>
<td>Shopping</td>
</tr>
<tr>
<td>9</td>
<td>Heating Mantle</td>
<td>3,000</td>
<td>Shopping</td>
</tr>
<tr>
<td>10</td>
<td>Hydraulic press, 15 ton capacity</td>
<td>51,000</td>
<td>Shopping</td>
</tr>
<tr>
<td>11</td>
<td>Agate Mortar &amp; pestle</td>
<td>1,500</td>
<td>Shopping</td>
</tr>
<tr>
<td>12</td>
<td>Ice Maker</td>
<td>1,50,000</td>
<td>Shopping</td>
</tr>
<tr>
<td>13</td>
<td>Dies and Plunger</td>
<td>12,000</td>
<td>Shopping</td>
</tr>
<tr>
<td>14</td>
<td>Rotary Vacuum pump</td>
<td>9,000</td>
<td>Shopping</td>
</tr>
<tr>
<td>15</td>
<td>ASM hand books on materials</td>
<td>2,50,000</td>
<td>Shopping</td>
</tr>
<tr>
<td>16</td>
<td>Additional journals in the thematic area of Advanced Materials through science direct &amp; springer link</td>
<td>8,00,000</td>
<td>Shopping/DC</td>
</tr>
</tbody>
</table>

Note: NCB-National Competitive Bidding; DC-Direct Contract

(d) Collaborations:

(i) Collaboration with Magod Laser Machining Pvt Ltd., Bangalore.

The committee noted that the Coordinators are conducting discussions with M/s Magod Laser Machining Pvt. Ltd., Bangalore for applicable research and product development and to have the collaboration for research in machining of advanced materials using water jet and Laser beam methods.
(ii) **Collaboration with NOPO Nano Technologies India Pvt. Ltd., Bangalore.**

The committee noted the discussions being conducted by the coordinators with M/s NOPO Nano Technologies India Pvt. Ltd., for a collaboration activity for development of Nobel Prize winning material Carbon called grafene for applications in civilian and military areas.

(iii) **Collaboration with NAL, HAL, TATA Advanced Materials:**

The committee noted the coordinators are also conducting discussions with NAL, HAL and TATA Advanced Materials for collaboration for research and development.

The committee noted that the above proposed collaboration activities are for

a) Research in futuristic polymer composites for impact resistance material which finds its application in Car and Truck Bodies.

b) Research in special coatings for composite materials used in air craft for withstanding high temperature especially in LCA wing portion that carries Air to Air missiles.

The committee approved the above proposals and requested the coordinators and the Principal shall complete MOUs with the said agencies at an early date considering the expected time lines of the SPFU/NPIU.

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PRINCIPAL and CONVENOR

CHAIRMAN, BOG SUB-COMMITTEE
Annexure-II

Report on Study visit to Universities at Europe, USA, Canada, & Australia by the faculty
Presentations by the faculty members on their foreign visit
A Report on Visit to European Universities

Submitted by

Dr. G.N. Sekhar
Vice Principal
HOD, Department of Mathematics
BMS College of Engineering

Dr. M. Ramachandra
Professor
Department of Mechanical Engineering
BMS College of Engineering

Dates of Visit: October 1st – 12th, 2013
<table>
<thead>
<tr>
<th>Contents</th>
<th>Page No.</th>
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</thead>
<tbody>
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<td>1. Visit to University of Groningen</td>
<td>3-14</td>
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<tr>
<td>2. Visit to VITO (Vision on Technology)</td>
<td>15-19</td>
</tr>
<tr>
<td>3. Visit to University of Antwerp</td>
<td>20-27</td>
</tr>
<tr>
<td>4. Visit to University of Ghent</td>
<td>28-43</td>
</tr>
<tr>
<td>5. Visit to University of Aveiro</td>
<td>44-52</td>
</tr>
<tr>
<td>6. Research at Groningen University (European Universities)</td>
<td>53</td>
</tr>
</tbody>
</table>
Groningen University

2/10/2013 and 3/10/2013
Tuesday, 1/10/2013 – Amsterdam to Groningen

- Reached at Schiphol Airport, Amsterdam at 4PM
- Picked-up by a student of the UMCG (University Medical College Groningen)
- Travel by train to Groningen- Reached Groningen at 6.30PM

Wednesday, 2/10/2013 - Groningen

10:30 – 11:45: Tour of the UMCG (University Medical College Groningen)

- Venue: Hanzeplein 1
- Guided by Mr. Freek De Bos

- We were introduced to hospital facilities at UMCG. Shown infrastructure available, Emergency facilities, Medical facilities etc. Explained how efforts are being made to make patients feel as if they are at home not in a hospital. The hospital looks like 5 star hotel. Visited basement of the hospital where all the logistics are transported. Material transfer from wards-to-labs, labs-to-wards, stores-to-wards, wards-to-stores etc. takes place through hoses by vacuum transfer technology. Everything is computer controlled. All vehicular, material and personnel movement takes place in the basement to minimise disturbance to patients.
Visit to the Zernike Campus  
(02:30-17:00)  
Venue: Faculty Room, Bernouilliborg, Nijenborgh 1

General Introduction to the University (Dr. Fiorella Brustolin)

<table>
<thead>
<tr>
<th>1350 Staff &gt; 90 Professors</th>
</tr>
</thead>
<tbody>
<tr>
<td>580 PhDs (65% foreign)</td>
</tr>
<tr>
<td>4,000 Students (800 a year)</td>
</tr>
<tr>
<td>av. 20% foreign</td>
</tr>
<tr>
<td>EUR 120 million Annual budget</td>
</tr>
<tr>
<td>1500 Publications a year</td>
</tr>
<tr>
<td>12 Research institutes</td>
</tr>
<tr>
<td>14 Bachelor’s degree programs</td>
</tr>
<tr>
<td>31 Master’s degree programs</td>
</tr>
</tbody>
</table>

Research areas

- Chemistry, Physics, Mathematics, Astronomy
- Biology, Pharmacy, Life sciences
- Computing Science
- Environmental science
- Industrial Engineering, Chemical Engineering,
- Applied Physics and Mathematics

- Offer both Science and engineering degrees (BSc and MSc)
- **Research and education are intertwined**
• The university has Distance learning, E-learning/web classes
• Honours programme
• State of the art labs
• World-class researchers as teachers

Research Institutes in the University:

› ALICE - Artificial Intelligence and Cognitive Engineering
› CBN - Center for Behaviour and Neurosciences
› CEES - Centre for Ecological and Evolutionary Studies
› CTN - Centre for Theoretical Physics
› ESRIG - Energy and Sustainability Research Institute Groningen
› GBB - Groningen Biomolecular Sciences and Biotechnology Institute
› GRIP - Groningen Research Institute of Pharmacy
› ITM – Research institute of Technology and Management
› Johann Bernoulli Institute for Mathematics and Computer Science
› Kapteyn Astronomical Institute
› Stratingh Institute for Chemistry

› Zernike Institute for Advanced Materials

The above research institutes offer BSc and MSc programs.

Ranking

In the Top 4% of the world’s best research in Chemistry and Advanced Materials Science
Presentation by Prof. Bart De Kooi, Prof. of Applied Physics, Zernike Institute of Advanced Materials (ZIAM);

Presentation: “Nano science of novel materials: physics, chemistry, and biology meet”

Spoke about Advanced Materials - Functional materials for future technologies

- Bio membranes, molecular motors...
- Molecular electronics: Polymers, Carbon nanotubes, graphene
- Mott transistor
- Phase-change materials for rewritable data storage
- Nanoparticles for hydrogen storage
- Casimir forces
- Surface nano-engineering of micro cantilevers.

Different research groups are working on above research areas.

Briefly discussed with Prof. Bart De Kooi about our research plans. He gave his contact details for future contact for any help in the field of Nano materials. Now his research area is mainly Nano material production for hydrogen storage (Automobile application).

He has agreed to give contact details of another research group working on CNT and Graphene. Obtained a copy of his presentation.

Contact Details: prof. dr. ir. B.J. (Bart J) Kooi
Job title: Adjunct professor
Expertise: Materials Science, Electron Microscopy
Email: b.j.kooi@rug.nl
Phone: +31 50 363 4896, +31 50 363 4879 (Fax)

We should pursue this contact for our future plans in advanced materials research.
Presentation by  Prof. Jos Roerdink, Prof. Of Computer Science and Director of the Johan Bernouilli Institute

Presentation: “Functional Neuro Imaging”

Spoke about fMRI, Functional neuroimaging, Genomics visualization, Innovative interface software for visualization, Non photo realistic rendering, biomedical visualization and bioinformatics.

Contact Details:  prof. dr. J.B.T.M. (Jos) Roerdink
                       Job title: Professor
                       Expertise: Computing Science, Visualisation, Neuroimaging
                       Email: j.b.t.m.roerdink@rug.nl
                       Phone: +31 50 363 3931 (Fax) +31 50 363 3800

He had done lot of work in fMRI, Functional neuroimaging.

This contact may be very useful for Dr.H.N.Sumo, HOD Medical Electronics.

Dinner Meeting at Kohinoor (Indian restaurant)

Participants:

  Indian Delegation,

  Dr. Bert Verveld (Secretary General); A.O

  Dr. Prashant K. Sharma, Professor, Kalf Institute(UMCG)

  Nele De Gresem, India Platform

Discussion was focused on research culture in Groningen University, courses offered at Groningen University, collaborative research, research funding pattern, foreign students study at Groningen University etc.

The Groningen University does not have separate teaching institutes. Instead the Groningen University has Research institutes that are funded by the government of Netherlands for research and teaching. The academic culture is 50% Research and 50% teaching. The research institutes offer courses that are specific to the area of research. The main focus is on Master’s program and PhD.
All research projects are done under collaboration with industries. The research institutes cater to the needs of the industry by developing products for them. The research funding is mainly done by industries and partly done by government. The work is mainly concentrated on applicable research.

Masters and PhD programmes are offered for foreign students and are very expensive. Part of the funds generated through foreign students is used for education to home land students.

**Thursday, 3/10/2013 – Groningen University**

9:00 – 12:00: Visit to the Kollf Institute (biomedical engineering and material sciences)

- **Prof. Henny van der Mei**, Presentation
  - presentation was about
    - Kollf Institute which mainly a Bio-Medical research Institute.
    - Facilities available for Bio-medical research
  - **Prof. Henny van der Mei**, presentation ("Man, materials, microbes and infections")

- **Copy of the PPT recievied and will be made available to HOD’s of BT/M.Eins/CH**

- **Prof. Henk J. Busscher**, introduction about the biomedical engineering lab

- **Dr. Prashant K. Sharma**, tour around the biomedical engineering lab
14:00 – 17:30: Tour of the laboratories (Dr. Gopi Krishnan)

Zernike Institute

Dr. Gopikrishnan is Post-doctoral research scientist at Zernike institute of advanced materials. He worked extensively on Nano Materials production and characterization. He is doing his post-doctoral research under Prof. Bart De Kooi. He showed lot of interest in what we have planned for our COE. Dr. Gopikrishnan is planning to relocate to India and an association/Collaboration with him under COE will be useful.

Email: gopi.k.krish@gmail.com

At Zernike Research Institute
VITO (Vision on Technology)
University of Antwerp
04/10/2013 – 07/10/2013
Friday, 4/10/2013 – Groningen to VITO

7:30 – 12:00: Bus drive Groningen – Mol (Antwerp)

12:00 – 16:45: Visit to VITO (Vision on Technology)

12:05: Welcome by Prof. Ludo Diels

Presentation was about Climate change, food security, scarcity/availability of raw materials, a sustainable energy supply, an ageing population of Europe as main agenda of research at VITO which focuses on the major societal challenges of today and tomorrow.

Sustainable chemistry, energy, health, materials and land use are the five themes VITO will be focusing on in the next decade of research.

12:10: Dr. Peter Verboven, presentation on energy research at VITO

“Energy Technology: Smart Systems for Intelligent Energy Networks”

Presentation focused on

- Decentralized and sustainable energy production.
- Linking such types of power generation to existing energy networks.
- VITO’s research programme "Smart Systems for Intelligent Energy Networks" responds to the needs created within the concept of Smart Grids.
- Energy demand flexibility and production through distributed energy sources (wind turbines, photovoltaic installations, cogeneration, fuel cells) in combination with thermal (underground energy storage, phase change materials)
- Electric storage systems (batteries, plug-in hybrid vehicles...)
13:30: Dr. Sven Vercauteren, presentation on materials research at VITO

“Sustainable Materials Management”

Presentation focused on

- Sustainable materials management by shifting the societal behavior towards meeting its material needs without destabilizing the natural system.
- How to preserve the availability of natural resources and to reduce the environmental impact of material life cycles, while meeting the needs of a strongly growing global population
- Smart product design and efficient production allows companies to minimize their material usage. Consumers, companies and public organization can steer the markets by choosing environmentally friendly products and by re-using materials.
- At the production level, how innovative material technologies offer major opportunities for resource effective production and products.
- How Techniques like additive manufacturing can bring important benefits related to raw materials usage.
- How Surface engineering allows to introduce functionality to a material with minimal material use.

13:50: Dr. Yamini Satyawali, presentation on chemical research at VITO

Her presentation mainly focused on

- Use of Membranes for the production of processed water and for water treatment systems.
- Solvent separations and the development of solvent resistant membranes.
- Development of amongst others a hydrophobic ceramic membrane.
- Development of Pervaporation membranes which allow the separation of solvents from water and vice versa leading to the purification of process.
- VITO’s experience in sol-gel technology, template assisted deposition of top layers based on mesoporous films and nanozeolite particles. These technologies allow making ceramic materials with extremely specific top
layers. It will lead to membranes with specific characteristics, specific and sharp cut off values, defined affinities.

14:10: Dr. Walter Debruyn, presentation on the remote sensing research and the relationship to water and agriculture

He presented how VITO's remote sensing unit develops innovative customer oriented solutions as well as scientific support to enable society to collect, access and use reliable geo-information, based on remote sensing, in order to support sustainable land management.

Their objective is

- Global Land monitoring
- Local Land monitoring
- Develop innovative Geo-spatial Solutions
- New Technologies

15:00: Visits to the Energy, Materials and Chemicals business units
Contact Details at VITO

- Mr. Peter Verboven
  Research Scientist Renewable Energy and Smart Grids
  Landline: + 32 14 335911
  Mobile: + 32 486 415006
  Peter.Verboven@vito.be

- Mr. Sven Vercauteren
  Commercial Coordinator - Sustainable Materials Management
  Landline: +32 14 335716
  Mobile: +32 475 531271
  Sven.vercauteren@vito.be

- Mr. Frans Snijkers
  Teamleader - Sustainable Materials Management
  Ceramic Materials and Powder Processing
  Landline: +32 14 335665
  Frans.snijkers@vito.be

- Mr. Walter Debruyn
  Research Coordinator Remote Sensing
  Landline: + 32 14 336846
  Mobile: + 32 491 565506
  Walter.Debruyn@vito.be

- Mrs. Yamini Satyawali
  Research Scientist Membrane Technology
  Yamini.Satyawali@vito.be

These Contacts shall be useful for collaboration for CH/Environmental Engg
Saturday, 5/10/2013 – Presentation on Socio-Economic-Historical Culture of Belgium/Antwerp through visits to the Museum/Art gallery

Sunday, 6/10/2013 – Visit to Brugge- Presentation on Historical and periodical changes in the Culture of Brugge.
Monday, 7/10/2013 – University of Antwerp

Venue address: Paardenmarkt 92

9:30: Welcome by Prof. Walter Sevenhans, Dean FTI (Faculty of Applied Sciences)

9:35: Presentations about research culture within electronics/ICT

“CoSy Lab” Prof. Luc Pieters

It is a team of researchers working in the area of applied engineering for

- Embedded programming
- Sensor processing
- Distributed systems
1. Localization en context awareness
2. Computer vision / image processing
Presentation by Prof. Raf Catthoor, Car Ecology

It's a presentation about Master program in Car Ecology

Master in
Car Ecology
New Technological and Ecological Standards
in Automotive Engineering

- **Module 1**: Developing engine technologies (6C)
- **Module 2**: Energy efficient design of powertrain and body (6C)
- **Module 3**: Alternative drive systems (6C): HEV and EV, batteries, fuel cells, ultracaps.
- **Module 4**: Green fuels (6C)
- **Module 5**: Trends in vehicle electronics (6C): power electronics and drives, bus systems, ECUs
- **Module 6**: Communication and management for engineers (10C)
11:00: Bus to Campus Hoboken
   - Venue address: Salesianenlaan 30
   - Reception by Prof. Gunther Steenackers

11:45: Prof. Gunther Steenackers, presentation on research culture within Electro Mechanical engineering

Work in progress (Automotive Field)
- Vibration measurement
- PLC automation
- Virtual modeling
- Formula1 car modeling and analysis
- Boat driven by solar energy
- Study of Bio-Mechanical behavior of Hip joint
- Modeling of Wind mill blades

13:30: Prof. Tom Breugelmans, presentation on research culture within (bio) chemical engineering
Presentation was on advanced reactor technology

Design of New reactors
- Electro chemical reactors
- Micro reactors
- Plasma reactors

14:15: Visits to the labs of Electromechanical Engineering (with Prof. Gregory Van Barel)
16:00: Tour around the labs of Biochemistry (with Prof. Tom Breugelmans)

Contact Details:

Faculty of Applied Engineering, University of Antwerp

- Mr. Luc Pieters
  Electronics/ICT
  Campus Paardenmarkt
  Landline: +32 3 2137947
  luc.pieters2@uantwerpen.be

- Mr. Raf Catthoor
  CarEcology
  Campus Paardenmarkt
  Landline: +32 3 2137957
  Mobile: +32 499 397629
  raf.catthoor@uantwerpen.be

- Mr. Gunther Steenackers / Mr. Luc Mertens
  Electromechanical engineering
  Campus Hoboken
  Landline: +32 3 6131971 (Gunther)
gunther.steenackers@uantwerpen.be
Landline: +32 3 613 17 62
Luc.Mertens@uantwerpen.be

- Mr. Tom Breugelmans
  (Bio) chemical engineering
  Campus Hoboken
  tom.breugelmans@uantwerpen.be

- Mr. Gregory Van Barel
  Electromechanical engineering
  Campus Hoboken
  Landline: +32 3 613 17 73
  Gregory.VanBarel@uantwerpen.be.

These Contacts shall be useful for collaboration activities of EC/CS/ME/CH
Tuesday, 8/10/2013 - Ghent

09:00 – 12:30: Visit to the Faculty of Engineering & Architecture

Venue address: Jozef Plateaustraat 22, Magnel Room

Official welcome by Prof. Rik Van De Walle, Dean, University of Ghent

Followed by Presentation “Faculty and its policy towards internationalisation” by Prof. Johan Lagae, Chairperson Faculty Committee for Internationalisation.

Contact Details: Prof. Johan Lagae
Chairperson Faculty Committee for Internationalisation
Ghent University, Belgium
Email:johan.lagae@UGent.be

He spoke in detail about courses offered for Dutch nationals, European nationals, Bilateral Agreements outside Europe.

Study programmes for Dutch Nationals (Only in Dutch)

- Bachelor programmes (leading to a bachelor degree)
- Master programmes (leading to a master degree)
- Advanced master programmes (leading to a master degree)
- Postgraduate studies (leading to a certificate)
- Permanent training (continuing education) (leading to a certificate)

All bachelor programmes at Ghent comprise 180 credits, corresponding to three years of study. Successful students are awarded the academic degree of ‘bachelor’.

Master programmes are open to holders of an appropriate bachelor degree. Master programmes involve at least 1 year of study (60 credits); some master degrees involve 2, 3, or 4 years of study (60 credits each). Successful students are awarded a ‘master degree’.

Advanced master programmes comprise 60 ECTS credits and provide high standard specialization opportunities for holders of a particular master degree.
International Courses (Masters programmes) for European nationals (only In English)

At Ghent University there are different types of international programmes, some are awarded by a degree and others are awarded by a certificate.

- Master programmes, (leading to a master degree)
- Erasmus Mundus master programmes (leading to a master degree)
- Advanced master programmes (leading to a master degree)
- Postgraduate studies (leading to a certificate)
- Permanent training (continuing education) (leading to a certificate)

**Master programmes** comprise 60 credits (1 year), 120 credits (2 years), 180 credits (3 years) or 240 credits (4 years).

**Erasmus Mundus Master Courses** are high-quality course programmes at Master level, which were selected for funding by the European Commission.

- Each course programme is offered by a consortium of universities which are situated in different European countries.
- As a student of an Erasmus Mundus Master Course he/she will study in at least two of these countries
- After successfully completing the programme, he/she will be awarded a recognized double, multiple or joint diploma.

**Erasmus Mundus Master Courses**

- International Master of Science in Rural Development
- European Master in Law and Economics
- European Master in Nuclear Fusion Science and Engineering Physics
- Erasmus Mundus Master of Science in Marine Biodiversity and Conservation
- European Master of Science in Nematology
- International Master of Science in Fire Safety Engineering
- Common European Master Course in Biomedical Engineering
- International Master of Science in Environmental Technology and Engineering.
Educational Cooperation (outside of Europe)

- Apart from international cooperation coordinated by specific externally funded programmes, Ghent University also cooperates on a bilateral basis with more than 150 higher education institutions outside of Europe.
- Ghent University considers a bilateral agreement as an international cooperation agreement between two universities.
- The main purpose is to create opportunities for student and staff mobility outside Europe.
- Funds are provided to new initiatives to facilitate mobility of staff & students.

Types of Agreements

**Memorandum of Understanding:** an institutional, general and formal agreement, concluded for a maximum period of 3 years.

**Bilateral agreement:**
Generally occurs in 2 phases:

First phase: ‘Letter of Intent’, an agreement for a maximum duration of 1 year, concluded in order to agree on the organization of mobility.

Second Phase: ‘Cooperation Agreement’, where the concrete and detailed engagements on cooperation and mobility will be mentioned.

Activities and financial support
Possible activities within the framework of a bilateral agreement are

- development of mutually beneficial academic programmes and courses
- exchange of academic staff and research assistants for main purpose of teaching
- exchange of students for study and research
- reciprocal assistance for visiting academic staff and students
- exchange of documentation, pedagogical information and research materials
11:00: Presentations about research and education:

- Prof. Joris Walraevens, Department of Telecommunications and Information Processing
- “Master of Fire Safety Engineering”, by Elise Meerburg, coordinator of the EM program in FSE
- Prof. Dirk Stroobandt, Department of Electronics and Information Systems
- Prof. Lieven Vandevelde, Department of Electrical Energy, Systems and Automation

14:00: Presentations about research and education:

- “Master in Chemical Engineering”, by Prof. Dagmar D’Hooge, Department of Chemical Engineering and Technical Chemistry
- “Master in Industrial Management and Operational Research”, by Prof. Stijn Devuyst, Department of Industrial Management
- “Master in Biochemical Engineering and Nuclear Fusion, by Prof. Johan Lagae, replacing Prof. Patrick Segers & Prof. Guido Van Oost
- “Master in Civil Engineering”, by Prof. Luc Taerwe, Department of Civil Engineering (tbc)

15:30: Visits to the Magnel Laboratory (Civil Engineering)

At the Magnel laboratory of Concrete Research, more than 25 researchers are studying a wide variety of different aspects related to concrete and cementitious materials. Most of these research projects are part of a PhD. The subjects are related to one or more of the following themes:

- Structural behaviour of concrete
- Concrete Technology
- Concrete and environment
Full-size test set-up on membrane action in reinforced concrete slabs.

Autogenous healing (Self crack healing)  Multiple cracking

3-point bending test:
Many of the research themes at Magnel Laboratory (Civil Engineering) at Ghent University match with those of BMSCE.

The department of civil engineering shall explore possible collaboration with Ghent University on these research themes.
20:00: Dinner Meeting at Het Pand (University Guest House)

Participants: Indian delegation, Rik Van de Walle, Johan Lagae, Dagmar D’Hooge, Joris Walraevens, Ann Vanoutryve, Hendrik Vanlandeghem

- Discussion was largely on student and faculty exchange between Ghent and Engineering colleges.
- Explored the possibility of joint masters programmes
  - 1st year in India and 2nd year onwards at Ghent
  - To adopt Ghent University curriculum for masters programmes
  - Faculty training for above programme through faculty exchange
- Dean of Ghent suggested to have consortium of BMSCE, MSRIT, BNMIT and JIT to float joint masters programmes
- Indian delegation extended an invitation to Ghent University delegation to visit our colleges in Feb, 2014 through India Platform for further discussion.
- For PhD and Research collaborations, DEAN of GU suggested to develop professor to professor contact first and take it forward for research collaborations leading to PhDs.
- Meeting ended with vote of thanks from Dr. Acharya, CEO, MSRIT
Wednesday, 9/10/2013 - Ghent

10:00 – 12:00: Visit to the Faculty of Bioscience Engineering

Venue address: Coupure Links 635

- **10:00**: Presentation on the faculty, by Mrs. Hilde Vandecasteele, International Relations Officer

**Contact Details:** Mrs. Hilde Vandecasteele
International Relations Officer
E-mail:Hilde.Vandecasteele@UGent.be

- **11:00**: Presentation of the Laboratory of Microbial Ecology and Technology (LABMET), by Prof. Nico Boon & Prof. Korneel Rabaey

- **Courses offered by Faculty of Bioscience Engineering**
  - Master of Science in Aquaculture
  - Master of Science in Environmental Sanitation
  - Master of Science in Food Technology
  - Master of Science in Nutrition and Rural Development
  - Master of Science in Physical Land Resources
  - International Master of Science in Environmental Technology and Engineering
  - International Master of Science in Rural Development

**11:30:** Presentations of BIOMATH (model based bioprocess analysis and optimisation), by Mr. Stijn Van Hoey
BIOMATH MISSION - GENERAL

“Model-based bioprocess analysis and optimization”

- System under study
- Knowledge through analysis
- Experimenting
- Virtual experimenting Simulations
- Hypothesis confirmed
- Reliable model prediction
- Model(s) of the system
- Modelling

FACULTY OF BIOSCIENCE ENGINEERING
Department of Mathematical Modelling,
Statistics and Bioinformatics
"Model-based bioprocess analysis and optimization"

Waste Stabilisation Pond – Ucubamba
14:00: Meeting with the rector of Ghent University, Prof. Dr. Anne De Paepe (at the Rectorate)

15:00: Visit to the HoGent Department of Mechatronics (with Dr. Peter Van Ransbeek, HOD)
Thursday, 10/10/2013 – Ghent to Porto to Aveiro

- **05:00**: Bus to Charleroi Airport
- **08:00**: Departure from Brussels (Ryanair – FR6942)
- **09:25**: Arrival at Porto (Portugal)
- Bus to Aveiro
- **13:00**: Lunch at Restaurant, University of Aveiro

- **14:00**: Welcome by Prof. José Fernando Mendes

He gave general introduction about Aveiro University and taken us on a tour of University.

Aveiro University is government established research and teaching based university with different research departments offering Bachelor, Masters and PhD degrees. The university does mainly collaborative research with industries funded by both industries and government. All research work is applicable research.

**Some of the research work which is of interest to COE in Advanced materials research at BMSCE is presented below**

- **CICECO (Centre for Research in Ceramics and Composite Materials)**

Research work at Centre for Research in Ceramics and Composite Materials is as follows

- Production and application of Nano and Micro structured materials for information and communication technology
- Composite materials for energy and industrial applications
• Production of bio materials
• Production of Multi crystal diamond, Nano crystal diamond and CNT by HFCVD for coating on tools, seals etc
• Electro ceramics for telecommunication applications

Contact details at this research center:

1. Dr. Joaquim Manuel Vieira
   Email: jvieira@cv.ua.pt
   Phone: +351 234 370 300

2. Dr. Paula Maria Lousada Silveirinha Vilarinho
   Email: paula.vilarinho@ua.pt
   Phone: +351 234 370 354
• TEMA (Centre for Mechanical Technology and Automation)

Presentation by Dr. Manoj Kumar Singh

“Production and Engineering of Graphene for Applications in Nanoelectronics”

Current objectives of his work

Wafer-Scale Synthesis of Graphene and other 2d materials (MoS2, h-BN, WS2, etc.,)

Tuning the Electronic properties of Graphene by Heteroatom, and Molecular doping

Single and Polycrystalline Metal substrates (Cu, Ni, Pt, Ir..etc.,)

Also on semiconducting and insulating substrates (SiO2/Si), glass, Diamond

Methods:

Chemical Vapor Deposition (CVD) technique (i) Normal, (ii) High vacuum conditions

HFTCVD

- To clean samples in situ
- Graphene growth
His previous work:
Synthesis of large-area graphene sheet by Hot Filament Thermal Chemical Vapor Deposition
List of Publications Related to Graphene Research

http://www.nature.com/srep/2012/120921/srep00682/full/srep00682.html

Atomic-scale Observation of Rotational Misorientation in Suspended Few Layer Graphene Sheets Nanoscale 2010, 2, 700–708; Cover Article, also cited in top 10 research article in Nanoscale 2010


4. S. Singh, Manoj K. Singh, M. K. Nayak, S. Kumari, S. Shrivastava, Jose J. A. Gracio, and D. Dash
Thrombus Inducing Property of Atomically Thin Graphene Oxide Sheets ACS Nano 5 (6), pp 4987–4996 (2011)

5. S. Singh, Manoj K. Singh, Jose Gracio, D. Dash


7. Manoj Kumar Singh, Igor Bdkin, Jose Gracio
Charge Injection and local charge distribution in freely-suspended Graphene Sheet measured by Scanning Kelvin probe Microscopy (under process) 2013

He has sent email expressing interest in collaborative work with Centre of excellence in advanced materials research at BMSCE. Following is the content of the Email

Contact details: Dr.Manoj Kumar Singh,Ph.D
Group leader & Principal Investigator
Graphene Research lab
Centre for Mechanical Technology and Automation (TEMA)
Department of Mechanical Eng.
University of Aveiro, Aveiro,
Portugal
Telephone: +351 234 370 830/Extension:23879
Fax:+351 234370953
Email: mksingh@ua.pt , 75.manojsingh@gmail.com
regarding collaboration work

Manoj Singh <mksingh@ua.pt>  
To: "dr.mramachandra@gmail.com" <dr.mramachandra@gmail.com>

Dear Professor Ramachandra,

It is my great pleasure to meet you during your visit to our department at university of Aveiro. We are looking for some collaborative work related to graphene research and composites. Let me know if you have some research plan at your side.

Thank you,

With regards,

Manoj Kumar Singh

Dr. Manoj Kumar Singh, Ph.D
Group leader & Investigador Principal
Centre for Mechanical Technology and Automation (TEMA)
Department of Mechanical Eng.
University of Aveiro
3810-193 Aveiro, Portugal

http://www.ua.pt/tema/PagePerson.aspx?id=3933

Telefone: +351 234 370 830 / Extenção: 23879

Fax: +351 234370953
Friday, 11/10/2013 – University of Aveiro

09:30: I3N (Institute for Nanostructures, Nano modelling and Nanofabrication)

Research work at Institute for Nanostructures, Nano modelling and Nanofabrication is as follows

- Organic semiconductor devices: from OLEDs to photovoltaics in collaboration with CeNTi (Centre for Nanotechnology and smart materials, Portugal)
  - Fabrication and Characterisation of OLEDs and OPVs: Optical, Morphological and Basic electrical properties.
  - OLEDs are developed by thermal evaporation

Contact details: Luiz F. Ribeiro Pereira
   Professor
   Department of physics
   University of Aveiro, Aveiro,
   Portugal
   Email: luiz@fis.ua.pt
   Phone: +351 234 370 289

This contact may be very useful for Dr. Sundar Seshu

11:00: CESAM (Centre for Environmental and Marine Studies)
- The talk mainly focused on research in the field of waste management, environment protection, Under water marine studies
- Centre offers Masters in Environmental and Marine Studies

14:30: IT (Telecommunications Institute)

Research work at Institute for Telecommunications Institute is mainly on wireless circuits and systems
- Computer aided design tools for Nonlinear RF electronics
- Telecommunication systems identification (PA and Mixer
  behavioural modelling)
- Active device modelling (Si LDMOS/MOSFETs, GaAs, MESFETs/
  HEMTs)
- Design of highly linear multi carrier RF power amplifiers and
  mixers
- Nonlinear distortion modelling and pre-distortion

This centre is internationally recognised as one of the best in nonlinear
intermodulation distortion modelling.

Contact details:

1. Dr. Jose Carlos Pedro, Senior Professor
   Institute of telecommunications
   Campus at University of Aveiro, Aveiro, Portugal
   Email: jcpedro@ua.pt
   Phone: +351 234 377 900

2. Rogerio Nunes Nogueira, Senior Researcher
   Institute of telecommunications
   Campus at University of Aveiro, Aveiro, Portugal
   Email: rnogueira@av.it.pt
   Phone: +351 234 377 900

This contact may be useful for Dr. Kanmani, Department of telecommunications.

16:30: Visit to IEETA (Institute of Telematics and Electronic Engineering)

Research work at Institute of Telematics and Electronic Engineering is mainly
on Image processing and Image informatics, Video EEG fMRI.

Contact details:   Dr. Augusto Silva

   Senior Professor
   Department of Electronics, Telecommunications and
   informatics
   Campus at University of Aveiro, Aveiro,
   Portugal
   Email: augusto.silva@ua.pt
   Phone: +351 234 370 500
This contact may be very useful for Dr.H.N.Sum and faculty members of department of Medical Electronics.

Saturday, 12/10/2013 – Aveiro to Lisbon to Dubai to India
Research at European Universities

✓ Requests from the business world, Industries and society inspire researchers to seek new projects and new angles of approach.
✓ Cooperation between business world (Industries) and universities and other research institutes is a condition for being considered for incentives (grants) from government.
✓ Different departments work together to design large-scale, multidisciplinary research projects.
✓ This resulted in
  o The most up-to-date knowledge for the organization
  o Chances of gaining incentive grants
  o Contact between organization and scientists, students and potential employees
  o Multidisciplinary approach to research questions
✓ There are various options for starting research in the University, ranging from small-scale research by Master’s students to mega-projects with Research scholars.
✓ Practical orientated and applied research takes place within all faculties of the University.
✓ All research projects are done under collaboration with industries. The research institutes cater to the needs of the industry by developing products for them.
✓ The research funding is mainly done by industries and partly done by government. The work is mainly concentrated on applied research.
Global Engineering Deans Council (GEDC) Conference

“Online Digital Education and Transformed Faculty Roles”

GEDC CONFERENCE
CHICAGO, Oct.20-22, 2013

Report by
Dr. K. M. Babu
Principal
BMSCE
2013 GEDC - Acknowledgments

Thanks to the Council of Trustees, BMSET & BOG, BMSCE for permitting me to attend the important conference;

Thanks to IUCEE for the information and providing an opportunity to participate in the event;

Thanks to TEQIP-II for providing the funding the event;

Thanks to Vice Principal, Deans, HODs, Faculty & Staff of BMSCE for the support & cooperation for enabling me to attend the conference.
2013 GEDC – Key Note: Global Drivers

1. Accelerating Change
2. Accessible & Inexpensive Global Communication
3. Partnerships & Engagement
4. Globalization
5. Expanding Access to Higher Education
6. Expanding Opportunities for Talent
7. Cost Control/Sharing
8. Innovation
9. Great Global Challenges
10. Leadership Challenges
2013 GEDC – Key Note: Industry Perspective

1. Hands-on, engaging & Instructional tools
2. Readily accessible hardware (Open-source)
3. Personal real-time systems for students
4. Online content for Learning & Assessment
5. MOOCs & Blended Learning
6. Proliferation of Student Competition
7. Online & Technology Trend
2013 GEDC – Key Note: Issues & Challenges

Engineering Education is driven by Technology?
One University for a million population?
MOOCs / Online digital learning?
Blended learning or Internal MOOCs?
How to introduce Projects?
How to engage Students?
2013 GEDC - Visit to US Universities...

Purdue University on 23.10.2013; 610 Purdue Mall  West Lafayette, IN 47907, United States

University of Wisconsin on 24.10.2013; Madison, WI 53706 United States

Michigan State University on 25.10.2013; 426 Auditorium Rd  East Lansing, MI 48824, United States

Carolina State University on 27.10.2013; 2200 Hillsborough Raleigh, NC 27695, United States

University of Michigan on 29.10.2013; 1032 Greene St, Ann Arbor, MI 48109, United States
Learning from the Universities

- Huge Campuses
- Lot of funding from the Government/Industry/Alumni
- State of art Infrastructure
- Autonomous Functioning
- Cutting edge Curriculum
- Industry on Campus/Support
- Student facilities
- Support Services for both the Faculty & Students
- Research
- Innovation
- Entrepreneurship
- Individual Initiatives by the faculty
- Vast Library
- Use of Technology & digital learning
THANK YOU
for Your Kind Attention...

Dr. K. M. Babu
Principal
BMSCE
A Brief Report on Visit to Canadian Universities from 26\textsuperscript{th} October to 6\textsuperscript{th} November 2013.

Submitted by:

Dr. L.Ravi Kumar
Professor
Department of Mechanical Engineering

Dr.M.S.Dharmaprakash
Professor
Department of Chemistry

Dr.K.R.Suresh
Professor
Department of Civil Engineering
# Program Schedule:

<table>
<thead>
<tr>
<th>Dates</th>
<th>Time</th>
<th>Activities</th>
<th>Notes</th>
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<tbody>
<tr>
<td><strong>Saturday, Oct 26</strong></td>
<td>1:25 PM</td>
<td>Arrive into Vancouver Check-in hotel</td>
<td>CX 838 Rosedale on Robson Suite Hotel 838 Hamilton Street @ Robson</td>
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<td><strong>Sunday, Oct 27</strong></td>
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<td>City tour of Vancouver</td>
<td>Private time</td>
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<td><strong>Day 1: Mon, Oct 28</strong></td>
<td>9:45 AM</td>
<td>TEQIP Delegation arrives at the BC ShowCase</td>
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<td><strong>BC ShowCase</strong></td>
<td>9:55 AM</td>
<td>Ministry of International Trade Assistant Deputy Minister to provide welcoming remarks to the delegation (TBD)</td>
<td>Ramona Soares</td>
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<td><strong>Suite 2010 South,</strong></td>
<td>10:00 AM</td>
<td>Presentation of Ministry of International Trade, Priority Markets, India team</td>
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<td><strong>800 Robson Street</strong></td>
<td>10:00 AM</td>
<td>Klaus Buttner, Executive Director Michael Nicholas, Director Edwina Ramirez, Senior Manager Kevin Loyens, Senior Manager Khris Singh, Senior Manager</td>
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<td></td>
<td>10:30 AM</td>
<td>Presentation of Ministry of Advanced Education</td>
<td>Kathryn Beaulac, Policy Advisor</td>
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<td>11:00 AM</td>
<td>Presentation of BCCIE</td>
<td>Tanya Grand, Director, Operations and Programs</td>
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<td>11:30 AM</td>
<td>Presentation of IC Impacts</td>
<td>Dr. Nemkumar Banthia Scientific Director and Chief Executive Officer Tel: +1 (604) 822-9541 or +1 (604) 822-4661</td>
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<td>1:00 PM</td>
<td>Presentations of BC Universities – UBC/SFU/BCIT.</td>
<td>Leonel Roldan Flores, Acting Executive Director, International, UBC Sarah Dench, Executive Director, SFU International Tracy Wang, Manager, BCIT International Joe Boyd, BCIT Research Liaison Officer</td>
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<td>Time</td>
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<td>3:00 PM – 5:00 PM</td>
<td>MITACS</td>
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<td>Oba Harding</td>
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<td>Director, Business Development</td>
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<td>604 616 5594</td>
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<td>9:00 AM – 9:30 AM</td>
<td>Travel to UBC</td>
<td>Ground transportation arranged by MIT</td>
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<td>9:30 AM- 10:30 AM</td>
<td>Meeting with UBC Electrical and Computer Engineering</td>
<td>Prof. Vijay Bhargava</td>
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<td>Professor</td>
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<td>Fred Kaiser Building, Kaiser Room</td>
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<td>2332 Main Mall</td>
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<td>10:30 AM – 11:00 AM</td>
<td>Travel to IC Impacts</td>
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<td>11:00 AM – 12:00 noon</td>
<td>Site visit to IC Impacts</td>
<td>Sue Roppel, Chief Operating Officer</td>
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<td>Mr. Salman Soleimani-Dashtaki</td>
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<td>University of British Columbia</td>
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<td>6250 Applied Science Lane</td>
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<td>Vancouver, BC V6T 1Z4</td>
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<td>1:00 PM – 2:00 PM</td>
<td>Meeting with UBC Advanced Fibrous Materials</td>
<td>Professor Frank Ko</td>
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<td>Canada Research Chair Professor</td>
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<td>Vancouver, BC, Canada, V6T 1Z4</td>
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<td>2:00 PM – 3:00 PM</td>
<td>Travel to Simon Fraser University</td>
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<td>3:00 PM – 5:00 PM</td>
<td>Meetings and Site visits to SFU (TBD)</td>
<td>Dr. Woo Soo Kim - Nanomanufacturing</td>
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<td></td>
<td>Dr. Majid Bahrami - Thermal Fluids</td>
<td></td>
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<td></td>
<td></td>
<td>Dr. Krishna Vijayaraghavan - Green Energy</td>
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<td></td>
<td>Dr. Erik K Jeang – Microfluidics</td>
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<td>Contact: Karen Lee</td>
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<td>External Liaison and Communications Officer</td>
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<tr>
<td></td>
<td></td>
<td>Faculty of Applied Sciences</td>
<td></td>
</tr>
<tr>
<td>5:00 PM – 6:00 PM</td>
<td>Travel back to hotel</td>
<td>Rosedale on Robson Suite Hotel</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>838 Hamilton Street @ Robson</td>
<td></td>
</tr>
<tr>
<td>5:45 AM</td>
<td>Depart hotel</td>
<td>Ground transportation arranged by the TEQIP delegation</td>
<td></td>
</tr>
<tr>
<td>7:00 AM – 8:35 AM</td>
<td>Travel to Victoria via BC Ferry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:35 AM – 10:00 AM</td>
<td>Travel to University of Victoria</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:00 AM - 12:00 PM</td>
<td>Site visit and presentation at University of Victoria (TBD)</td>
<td>3800 Finnerty Rd, Victoria, BC</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Activity</td>
<td>Organizer</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------------------------------------------</td>
<td>----------------------------------</td>
<td></td>
</tr>
</tbody>
</table>
| 12:15 PM – 2:30 PM | Lunch & meeting at Camosun College (Interurban Campus) | Geoff Wilmhurst—Director, Camosun International  
wilmhurstg@camosun.bc.ca  
4461 Interurban Rd |
| 2:30 PM – 3:00 PM | Travel to RRU                                                              | Cyndi McLeod, Vice President  
Cyndi.mcleod@royalroads.ca  
2005 Sooke Rd Victoria, BC |
| 3.00 PM – 5.30 PM | Meeting at RRU                                                            |                                  |
| 6.00 PM – 7:30 PM | Reception for the delegation at the Castle, arranged by RRU              |                                  |
| 7:30 PM       | Depart for Ferry terminal                                                  |                                  |
| 9:00 PM – 10:30 PM | Travel to Vancouver via Ferry                                            |                                  |
| 11:10 PM      | Arrive hotel                                                              |                                  |

**Day 4: Thu, Oct 31**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Organizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 AM – 11:30 AM</td>
<td>Site visit at Ballard Power Systems</td>
<td>Kevin Colbow, Director of Product Management, Engineering Services</td>
</tr>
<tr>
<td>10:00 AM – 11:30 AM</td>
<td>Travel to Abbotsford</td>
<td></td>
</tr>
<tr>
<td>11:30 pm – 1:30 PM</td>
<td>Lunch</td>
<td>Private time</td>
</tr>
</tbody>
</table>
| 1:30 PM – 2:00 PM | Meeting/Meet UFV                                                         | Mr. Andy Sidhu  
33844 King Road, Abbotsford BC |
| 2:00 PM-3:00 PM | Meeting/Discussions with UFV Indo Canadian Chair and UFV team           |                                  |
| 3:00 PM – 3:15 PM | Travel to Cascade Aerospace                                              |                                  |
| 3:15 PM - 4:00 PM | Visit to Cascade Aerospace (TBD)                                         | Organized by Mr Andy Sidhu  
1337 Townline Road Abbotsford, BC |
| 4:00 PM - 4:30 PM | Travel to Lally Group                                                    |                                  |
| 4:30 PM – 5:15 PM | Visit to Lally Group                                                     | 5237 Gladwin Road, Abbotsford, BC |
| 5:15 – 5:45 PM  | Travel to restaurant                                                    |                                  |
| 6:00 PM–8:30 PM | Networking Dinner                                                        | Gian Sweet and Restaurant  
31836 South Fraser Way Abbotsford  
Hosted by UFV/Punjabi Patrika  
Mr Andy Sidhu – andyssidhu@hotmail.com |
| 8:30 PM       | Depart Abbotsford                                                         |                                  |
| 9:30 PM       | Arrive Hotel                                                             |                                  |

**Day 5: Fri, Nov 1**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Organizer</th>
</tr>
</thead>
</table>
| 9:00 AM – 4:00 PM | Visit to Toronto University                                              | Prof. Eswar Prasad  
Prof. Ridha Ben Mrad |

**Nov4** Return Journey
British Columbia offers diverse technology areas across a broad range of industry sectors

**Areas of Interaction**

- **Mining, Gas and Resources**
- **ICT & Wireless**
- **Aviation, Defence and Security**
- **Timber & Forestry products**
- **Clean Energy and Technology**
- **Education**
- **Agri-business, Food and Beverage**
- **Digital Media**
- **Life Sciences**

**Points Discussed:**
- Joint Research Projects
- Exploring Consultancy Projects
- Transfer of Technology Programs
- Faculty & Student Exchange Programs
- Twinning Programs

**Outline of the program:**
- meeting with large number of universities
- Visits to Industries
- Visits to Individual Universities
- Networking Session and exploring EOI/MOU
- Identification of Collaboration opportunities in Education/Business/Research

**Visits to the following universities and discussions on identification of joint projects**
- University of Victoria
- Simon Fraser University
- University of British Columbia
- British Columbia Institute of Technology
- Royal Roads University
- Camosun College
- University of Fraser Valley
- Thompson Rivers University
- University of Toronto
Day 1: 27-10-2013

Presentations

Ministry of International Trade Assistant Deputy Minister Mr. Ramona Soares addressed the delegation. Ministry of International Trade Assistant Deputy Minister to provide welcoming remarks to the delegation (TBD)

It was followed by Presentations by the Officials of BC, UBC, UVIC, BCIT, IC Impacts, SFU and others. The members of the above universities made presentations about academic activities and research work and invited the delegates to visit them.

The highlights of the presentations are as follows.
STRATEGIC FRAMEWORK

Vision (Jobs Plan)
Defend & create jobs by ensuring strong economic and fiscal fundamentals, removing barriers to investments and growing exports to powerful new markets

Goal (Ministry Service Plan)
BC is recognised globally as a preferred place to invest and do business

Mission (ITIA)
To open & expand markets for BC goods & services, particularly in Asia, and attract investment to grow priority sectors

Awareness Investment Exports Access

ITIA OBJECTIVES

PROMOTE BC INTERNATIONALLY
Double overseas presence, promote competitive advantages in key sectors and markets

ATTRACT INVESTORS
Use “Key account” approach, targeting international companies to invest and open offices in BC

CONNECT BC BUSINESSES TO INTERNATIONAL BUYERS
Identify opportunities and develop export markets

REDUCE BARRIERS TO TRADE
Identify and address interprovincial and international trade barriers

IDENTIFY SECTOR AND MARKET STRENGTHS AND OPPORTUNITIES
Centralised research and analysis expertise to assist achievement of all objectives

ORGANIZATION OF ITIA

International Trade and Investment Attraction Division
Assistant Deputy Minister

International Market Development
Export Development & Olymipic Legacies
IOTL Investment & Company Attraction
Trade Initiatives
Strategy, Policy & Performance
Division Operations

Priority Markets International Marketing Missions & Events TIRs

[Image of book cover: CANADA STARTS HERE]
PROMOTE BC INTERNATIONALLY:
Strategic Missions

Premier’s Missions 2011-12
China & India, November 2011
- Over 60 agreements and partnerships signed
- Value exceeding $1.4 billion
- 250 business and 100 community representatives participated

Japan, Korea & the Philippines,
May 2012
- 25 business agreements and partnerships signed
- Value exceeding $900 million
- 104 delegates representing 75 companies participated

China & Hong Kong, September 2012
- Promoted BC at World Economic Forum held in Tianjin, China
- Participated in Future of Energy panel
- Hosted NWPI Reception with Alberta and Saskatchewan

PROMOTE BC INTERNATIONALLY:
Events & Tradeshows

- BC and in-market TIRs organize and support industry specific
  exhibitions and conferences in BC and internationally
- Work with federal government, associations and companies to
  bring strong delegations
- Promote awareness of BC’s
  competitive advantage and introduce
  BC companies to potential clients and partners
- In-coming trade missions
  - Work with TIRs, Major
    Investments Office, other levels
    of government, and wide range
    of partners

PROMOTE BC INTERNATIONALLY:
International Marketing Activities

- International reach through integrated
  traditional and digital marketing
  approaches
- Focused target market promotion
  - Search Engine Marketing campaigns
  - Blogs and social media
  - Fostering lead generation behaviour
    to connect investors and buyers to
    B.C. companies
- Success stories online, video profiles and
  in-market industry media coverage
- Trade show and event promotion in local
  languages in key markets
CONNECT BC BUSINESSES TO INTERNATIONAL BUYERS
Export Development and Olympic Legacies

BC Business Network
A resource provided by the Ministry to help local businesses develop new opportunities and initiatives.

Benefits of Membership
Members get a unique supplier profile that gives them access to the tools, services and on-the-ground connections they need to grow their business internationally:

- Practical support from our TIRs for making introductions to potential buyers, investors and other international market partners.
- Comprehensive assistance in identifying and qualifying opportunities and investment decisions.
- Regular industry news updates specific to target markets to take advantage of opportunities and mitigate risks.
- Support for business development activities including trade shows and international trade missions.
- Educational opportunities to prepare for growth, including export workshops, webinars and other export development events.

ATTRACT INVESTMENT:
Outcomes & Priorities

<table>
<thead>
<tr>
<th>Program Outcomes</th>
<th>2013/2014 Priorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• From Jan. 07 - Jan. 13, IICA project managers addressed over 1025 inquiries from foreign investors and influenced more than 114 companies to expand and create jobs in B.C.</td>
<td>• New investments and business expansion in priority markets (China, India, Japan, Korea, EU, and USA).</td>
</tr>
<tr>
<td>• Daimler AG, Microsoft, Sony Imageworks, Ferus Inc.</td>
<td>• Continue to provide top-rate services to investors and address impediments to foreign investment.</td>
</tr>
<tr>
<td></td>
<td>• Develop comprehensive responses to qualified leads generated by TIRs, federal government etc.</td>
</tr>
<tr>
<td></td>
<td>• Continue to proactively push forward with a key account approach to facilitating new investment</td>
</tr>
</tbody>
</table>
PROMOTE BC INTERNATIONALLY:
India Trade and Investment Team

- India is an unique market
- Global investor, but little in BC
- Resources, Technology, Agrifood, Education and Tourism have huge potential
- Expanded Vancouver-based staff from 3 to 5
- Expanded India-based staff from 5 to 13 staff
- New TIR/contractors on board
- New representative – Consulate in Mumbai
- New representative – Consulate in Chandigarh

Taj Mahal, India

Going Forward...

Contact:

Klaus Buttner, Executive Director, International Market Development
Klaus.Buttner@gov.bc.ca  604-660-3549

Michael Nicholas, Director – India & SE Asia
Michael.Nicholas@gov.bc.ca  604-775-2144

International Trade & Investment Attraction
Ministry of International Trade
Over 90% of B.C.’s electrical power is from clean, renewable hydroelectricity. The economy is powered by clean energy technologies creating sustainable businesses and stimulating low-carbon investments. All new power generating projects will have ZERO net Greenhouse Gas Emissions.


Immense renewable resource potential:
- $C 15 billion in investment-ready projects, and
- 37,000 MW of renewable power ready to be harnessed.

**British Columbia Institute of Technology:**

BCIT conducts grant-funded and industry-sponsored applied research and development focused on solving industry’s challenges. BCIT researchers create practical applied research solutions that can be transformed immediately into commercially relevant products, services and applications.

These activities often result in licensing opportunities, spin-off companies, and new start-ups.

- School of Business
- School of Computing & Academic Studies
- School of Construction & the Environment
- School of Energy
- School of Health Sciences
- School of Transportation
- Learning and Teaching Centre
- **Greenlight Innovations:**
  - Interested in R&D collaboration with Indian post secondary institutions. They have a relationship with Indian Oil in R&D testing and commercialization of technology. [http://www.greenlightinnovation.com/](http://www.greenlightinnovation.com/)
- **Powertech Labs Inc:**
- **Wavefront**: Wavefront is a not-for-profit National Centre of Excellence accelerating the growth and success of wireless companies in Canada
- **Aquatic informatics**: Water contamination management system
- **Corinex**: Meter data management under smart grid meter.
- **Cascadeaerospace**: Aerospace Industry
- **Lallygroup**: Agricultural Food processing (Raspberry Plant)Technology Centre
University of British Columbia:

UBC has formal institutional agreements, memoranda of understanding and statements of cooperation with universities all around the world, reflecting more than 25 years of international partnerships. Emerging areas of research excellence at UBC reflect some of the world’s most insistent themes in science, technology, social sciences, and the humanities.
Every great discovery or innovation begins with research. Whether it is basic investigation in the sciences or arts, or developing applied solutions to meet the needs of society, research is a central component of UBC's mandate as a public university.

UBC's international reputation for excellence in research is founded on the amazing discoveries and inspired ideas of our researchers. Their work is strongly supported by strategic efforts to attract research funding, maintain modern facilities and equipment, steward partnerships with the public and private sectors and with other institutions, recruit and retain leading thinkers, and mobilize knowledge beyond the campus.

Internationally, UBC is focused on promoting collaborative research programs and exchange opportunities for graduate students and faculty members with peer institutions worldwide. We maintain a wide range of formal and informal agreements with universities around the world. UBC is also a founding member of the Association of Pacific Rim Universities and a member of the Universitas 21 international association.

During the visit, we have interacted the following professors at UBC

Dr. NemkumarBanthia  
Scientific Director and Chief Executive Officer, Dept. of Civil Engineering  
Tel: +1 (604) 822-9541 or +1 (604) 822-4661

Dr. A. Srikantha Phani  
Canada Research Chair (Tier 2)
Professor, Department of Mechanical Engineering, The University of British Columbia
2054-6250 Applied Science Lane, Vancouver, B.C., V6T 1Z4, Canada

Dr. Akram Alfantazi
Professor; Associate Dean, Research and Graduate Studies
Ph.D (Queen’s), P.Eng., FCIM, FNACE
Telephone: +1 (604) 822-8745; +1 (604) 827-5266
Office: Frank Forward Room 209; Fred Kaiser Room 5000

Prof. Vijay Bhargava
Green communications, cognitive and cooperative wireless systems, MIMO-OFDM systems, cross-layer analysis.

Sue Roppel, Chief Operating Officer
Mr. Salman Soleimani-Dashtaki
Applied Science Lane
Professor Frank Ko, Canada Research Chair Professor Tier I

INTERNATIONAL ENGAGEMENT
SFU Engaging the World
Facts and Figures

- Founded in 1965
- Top comprehensive research university in Canada
- 25,000+ undergraduate / 4000+ graduate students
- Year-round trimester system, 3 campuses
- Research strength in the humanities and social sciences, and the natural and applied sciences
- 8 Faculties in Arts & Social Sciences; Science; Applied Science; Health Sciences; Environment; and Communication, Art and Technology; Business; Education
- Interdisciplinary approach
- 940 faculty, 1500 staff

Students

Curriculum

- Exchanges and field schools
- Undergraduate and graduate dual degrees with Zhejiang University, Communication University of China, and Monash
- Certificate in International Experiential Learning
- Americas Executive MBA; 4 countries
- MSc Global Health & MA International Studies
- International Teacher Education
- International MA in Teaching English as a Foreign Language
- Co-op education, international internships and practica
International Engagement: India

- India Advisory Council
- Academic partners in India including TERI Univ, Baba FaridUniv, IIT-Ropar, Jawaharlal Nehru Univ, IIM-Indore, PanjabUniv
- Student placements with InfoSys, Tata Consultancy, Village Life Improvement Project, Public Health Foundation of India
- Credit courses in Punjabi language
- KomagataMaru project
- Diwali Gala fundraiser
- Sponsorship of Vancouver's Indian Summer Festival

Contacted Professors:

Dr. Woo Soo Kim - Nano-manufacturing
Dr. Majid Bahrami - Thermal Fluids
Dr. Krishna Vijayaraghavan - Green Energy
Dr. Erik K Jeang – Microfluidics

Contact:
Karen Lee,
External Liaison and Communications Officer
Faculty of Applied Sciences

Visit to University of British Columbia and SFU, interacted with professors and researchers of Mechanical Engineering, Materials Science and Engineering, Civil Engineering departments and green processes involved in manufacturing and processing industries.

Most of the professors and researchers have shown keen interest in collaborative research in thematic areas and exchange of faculty and students in short term and long term basis.

Visit to University of Victoria

After welcoming the delegates, there were presentations by the group heads of various departments about their research and activities and invited the delegates to visit the R&D labs. Some of the highlights of the presentations are as follows:
QUALITY
Provide students with high-quality graduate and undergraduate programs—they actually want to take.

EDUCATION

http://www.engr.uvic.ca

EXPERIENTIAL LEARNING
- UVic students apply their academic knowledge in real-world environments
- Alternate academic terms with work terms
- Link UVic with employers—valued education partners
- UVic is a top institution in Experiential Learning
- Mandatory co-op for all engineering programs
- Optional co-op for all computer science programs
- Graduate with 16 months of work experience

<table>
<thead>
<tr>
<th>2012/13 Engineering</th>
<th>Placements</th>
<th>Int. student placements</th>
<th>% of Int. student placements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergrads</td>
<td>953</td>
<td>64</td>
<td>6.5</td>
</tr>
<tr>
<td>Grads</td>
<td>61</td>
<td>56</td>
<td>91.0</td>
</tr>
</tbody>
</table>

RESEARCH FUNDING
- 5 Tier II and 5 Tier I Canada Research Chairs
- $17 million in NSERC funding last 5 years through SGS awards
- $5 million in CFI/BCDF infrastructure funding 2011-12
- $9+ million from other sources and contracts

INVENTION DISCLOSURE AND START-UP COMPANIES

[Table showing invention disclosures and start-up companies]
**RESEARCH IMPACT**

- Emphasize longer-term, bold research programs
- Translate knowledge into wealth
- Grow the local base of knowledge workers
- Environmental well being of Canadians
- Massive impact
  - International research achievements
  - Technology transfer
  - Social impact

**ECONOMIC IMPACT**

- Impact on the local economy
  - High tech sector has overtaken tourism
- Lost forestry jobs replaced with knowledge workers trained at UVic
- Attraction of international technology companies to Victoria
  - IBM
  - Microsoft

**IMPORTANCE OF COMPUTER SCIENCE AND ENGINEERING**

- In 1980 there were 10 Lower Island lumber mills. Today, two mills remain.
- The high technology industry has grown to $1.7B p.a. and provides careers in software, information technology, energy management, aerospace, medical devices, ocean technology and many more
- Our graduates create, manage, innovate, employ, lead, ...

**EXPANDING OUR HORIZON**

- Emergent trends
  - Information, sustainability, biology, energy and water
- Meet community and global expectations
- Build on existing strengths and foster interdisciplinary research
- Lead in the implementation of innovative program delivery methods
- Increase enrolment of female students and other underrepresented groups

**INTERNATIONALIZATION**

- http://www.engr.uvic.ca

**SUSTAINABILITY**

- Quality
- People
- Research
- Community

- http://www.engr.uvic.ca
INTERNATIONAL MOBILITY

- Increased enrollment of international undergraduate and grad students
- Two-way international co-op opportunities and exchanges
- International fellowships to attract brightest students
- Develop flexible curricula to accommodate and facilitate studies abroad

INTERNATIONAL PARTNERSHIPS

- Partner with world-class institutions and projects to enhance our research strengths and visibility
- Leverage and tap international alumni
- Increase international research collaborations
  - Document and record international collaborations and exchanges at all levels—academic, industry, coop
  - Exchange, field studies, grad students, postdocs, visiting scientists, study leaves

THANK YOU

http://www.engr.uvic.ca

Wind, Wave and Tidal Energy Research at UVic
(In only 1.5 minutes!!!)

Kamloops University Delegation Visit
October 30, 2010

Dr. Graham Crawford
Associate Professor
Department of Mechanical Engineering
Email: gcrawford@uvic.ca
Tel: 1-250-721-7726
Web: www.engr.uvic.ca

Outline

- Wave energy
  - Dr. Buckham (lbuckham@uvic.ca)
- Tidal energy
  - Ducted turbines
  - CFD-oceanographic modeling
  - Porous disc & rotor testing
- Wind energy
  - Difuser-augmented Dr. Oskari (oskari@uvic.ca)
  - Advanced analysis & MDO capability
  - Small rotor testing
  - Offshore wind platforms
Wave Energy (Dr. Buckham)

- An Overview of the West Coast Wave Initiative (WCWI)

What is wave energy?

Wave Energy

- Wave energy converters work with long period
- Wave energy is sometimes described as a concentration of solar energy
- Differential Heating + Winds + Swell

The magnitude of the power transport in ocean waves has inspired a variety of WEC concepts.
- Each case of WEC technology is distinguished by the water wave phenomena that drives it.

West Coast Wave Initiative at the University of Victoria

WCWI

- Resource Assessment
  - Wave energy direct impacts
  - Metocean
  - Wave conditions

- Technology Modeling
  - Wave energy converter models
  - Wave energy converter performance

- Grid Integration
  - Power grid integration
  - Electrical grid integration

WCWI - external partners and service providers

WCWI - Institute for Integrated Energy Systems

Program Director & Project Manager
- Senior research engineer
- Facility (hatchery)
- WECs, WECs Canada
- WEC, BC, Alberta

Service Providers
- AER Technologies
- Cenupco Energy
- Ocean Energy
- Triple E Energy

Gross Wave Resource Assessment - Ucluelet

- Wave energy
- Metocean & site effects
- Power
- Wave resources
- Net resource
- Usable resource

West Coast Wave Initiative - coastal measures & modelling

- Wave energy
- Metocean & site effects
- Power
- Wave resources
- Net resource
- Usable resource
West Coast Wave Initiative – partner technologies.

Tidal Energy

CFD actuator disc and actuator line simulations carried out for ducted rotors
- Investigation of ducted vs non-ducted rotors
- Mixed CFD-blade element analysis & design procedure

There is a requirement for detailed device simulations within oceanographic sims

The numerical modelling work is supported by water tunnel testing with PIV data
- Real rotors & porous disc analogues

Wind Energy
Diffuser augmentation

Prototype device

SeaBlink turbine (Pacific Inc.)

Experimental system

Performance comparison of the turbine without and with diffuser

Flow patterns downstream of the turbine without diffuser

Flow patterns downstream of the turbine with diffuser
Advanced Analysis & MDO

Larger and advanced machine concepts require better tools & optimization
- Composite layups
  - Bend-twist coupling
  - Large non-linear deformations
- Non-straight blades
  - Sweep & out-of-plane curvature
  - Tailoring of vorticity location
- Need to consider system
  - Unsteady performance
  - Multidisciplinary optimization
    - Continuous range of operating points
    - Efficient gradient calculations

Lagrangian vortex model required for full generality
- Cost vs fidelity
  - Grid-based CFD; incurs large cost
  - DSM not generalizable
- Vortex methods
  - Minus-kt
  - Our code
    - Vorticity transport eqns.
    - Particles, lines, sheets
    - RANS
    - Vorticity equations
    - 2nd order explicit
    - Steady & unsteady
      - implicit solvers
      - FEM formulation

Wake models are arbitrary combinations of particles, filaments or sheets

Even simple preliminary implicit method greatly improved convergence
- Convergence at high λ, where explicit diverges
- Only need one full Jacobian re-eval
  - Intelligent updating
- Monotonic convergence

GEBT captures position ξ and orientation Λ of cross-sections; VABS cross-section matrix
An adjoint gradient method has been derived for GEBT/VABS

\[ \frac{df}{d\theta} = \frac{\partial f}{\partial \theta} + \int \left( \frac{\partial f}{\partial \theta} \right) \frac{d\theta}{d\phi} \, d\phi \]

Direct forward method: solve for each \( \theta \)

A multidisciplinary feasible (MDF) MDO framework is used

Code validation to experiment in-house and through collaboration

Offshore wind

Need to understand implications of floating support platform

An approach is needed to identify promising architectures
Thanks for listening & we're happy to chat afterward

- And thanks to all those hard-working students
- Literally too many to mention here...
- E-mails
  - Dr. Crawford: laurana@uvic.ca
  - Dr. Buckham: bbuckham@uvic.ca
  - Dr. Oshkai: joshkai@uvic.ca

NANOMATERIALS RESEARCH
Presented by: Dr. Rustam Shirvani
Department of Mechanical Engineering
Nanoscience Transport, Mechanics & Materials Laboratory
University of Victoria
rustam@uvic.ca

The following slide contains an overview of Nanoscience Research in Dr. Shirvani's lab, as well as the recent progress in the field of nanotechnology and materials science.

Nanoscience Transport, Mechanics & Materials Laboratory
COVERING LARGE AREAS BY ORDERED NANOSTRUCTURES AT LOW COST

Nanoparticle depositions - beam lithography
Formation cost and defects with area
Patternable depositions - ordered lithography
Pattern cost does not scale with area

Metal nanowires by electroplating

Nanoscience Transport, Mechanics & Materials Laboratory
CHARACTERIZED NWs AT UVIC ADVANCED MICROSCOPY FACILITY (AMF)

Measurements:
- Dimensions
- Length variation
- Particle of NWs

By using:
- SEM
- EDX
- XRD

Nanoscience Transport, Mechanics & Materials Laboratory
BOTTOM-UP DEPOT: ASSEMBLY

Synthesize and functionalize NWs off-chip, then assemble the NWs in predetermined positions which can be created to create a single exposure of light in a photolithography process.
New Class of Long Wavelength Bi-Containing Semiconductors: GaAsBi

Periodic table, Bi halide group

- R B C N O
- Z G A P S
- Zn Se S Te
- H P F Cl Br I

Max Bi concentration 21%, > 3 μm. NSF Materials World Network

Centre for Advanced Materials and Related Technologies (CAMTEC)

- 29 professors in materials-related research across the campus of the University of Victoria

Nano Materials Research in the Faculty of Science at the University of Victoria

- Colloidal NPs, Quantum Dots (Prof. J. van Veghel, Chemistry)
- Nanomagnetism and Spintronics (Prof. B.C. Choi, Physics)
- Quantum Computing (Prof. E. T. Soon, Physics)
- Molecular Magnets (Prof. B. Entezari, Chemistry)
- Interfaces (Prof. R. A. Howe, Chemistry)
Wraps for Seismic Strengthening

Recent Bridge Failures
- Sustainability
- Innovative Materials
- Structural Health Monitoring

New Sect of Engineering - Geminics?

Recent Bridge Failures
- Geminics = Civil + Electronics
- Sustainability
- Innovative Materials
- Structural Health Monitoring
- Structures are being monitored in real time using state of the art sensors

STEM

Recent Bridge Failures
- Canadian Projects:
  - Piers done slab, Vancouver
  - Geminics sensors

- Sustainability
- Innovative Materials
- Structural Health Monitoring

Contact:
dunbar@uvic.ca
Phone: +250-721-7033
Overview

Polymer Electrolyte Fuel Cells
- Potential to deliver efficient and emission-free power in a number of applications
- Technically challenging, e.g., catalyst, degradation/MEM

Materials
- Rheology/micropatterning and in situ fuel delivery
- Temperature control in hydrogen production
- Membrane transport properties
- Chemical reaction dynamics (e.g., MEA)

Optical Coherence Tomography
- In-situ imaging measurements
- In-situ/CEM Chemical Degradation

Fibre-optic sensors for PEMFCs

Humidity/Temperature sensor

In situ RH/T sensors

- Use as a tool to ensure even humidification of membrane without external humidification

Thank-you!
Internet Engineering
Tequil Site Visit

Department of Computer Science
Faculty of Engineering
University of Victoria

Hadi A. Müller
hadi.amulla@gmail.com

"The world is on the threshold of a new era of innovation and change with the rise of the Industrial Internet."
— Peter C. Evans,
GE Director of Global Strategy and Analytics
— Marco Annunziata,
GE Chief Economist

Something profound is happening... The Smart Systems Revolution

Instrumented + Interconnected + Intelligent

Smart devices + Sensors

Software Engineering Research

- Software engineering @ runtime
  - requirements, models, V&V @ runtime
  - control science + control theory + runtime V&V
- Situation-aware computing
  - Self-adaptive systems
  - Mobility & context management
  - Edge and cloud optimization
- Cyber security and privacy
  - Automated cyber testing
  - Network security engineering
- Revolutionizing how people use information
  - Graph mining: video, audio, software
  - Group decision making
- Optimization @ runtime
  - Dynamic resource allocation and scheduling
  - Adaptive QoS & SLA management

Something profound is happening...

Instrumented + Connected + Intelligent

People, things, organizations, and machines can communicate and collaborate with one another in entirely new ways.

We can learn more about how the world works and what it can do.

We can reason to perform new tasks and get better results by optimizing our future actions.

The Industrial Internet Economy
Canadian Financial Post, May 2013

The seeds of the Industrial Internet are already being planted in the Canadian economy.

Sensor technologies are deployed in machinery to monitor equipment operations and manage the schedules and routes of transportation fleets.

The Industrial Internet revolution begins with the choices of business visionaries.

It will be managed and made valuable by the decision makers who rise to its opportunities.


December 9th, 2012

Minds + Machines

IBM
IBM Initiative
Smarter Systems for a Smarter Planet

Something profound is happening...

We now have the ability to measure sense and see the exact condition of practically anything.

"When you can measure what you are speaking about and express it in numbers, you know something about it; but when you cannot measure it your knowledge is of a meagre and unsatisfactory kind."

Lord Kelvin

Confluence of Sensors, Networks, Devices, Clouds, and Apps

Situational Awareness (SA)

- SA is the perception of environmental and personal context with respect to time and space
- Comprehension of its meaning and its projection into the future
- Critical to decision-making in complex, dynamic situations

Applications
- Mars Curiosity
- Aviation – UAV, drones
- Military command and Control
- Emergency Services

Applications
- Driving a car
- Crossing a street
- Playing soccer
- Playing basketball
- Shopping

India
Mindboggling Situation Awareness
Shibuya, Tokyo

Humans are amazingly adaptive

Intuitively we know how critical and valuable context is. But context is complicated.

"Context is the new battleground between Android, IOS, Windows and Apple, Google, IBM, Microsoft, Sony, Samsung, GE."

The Age of Context

When you have culture, context and competition working in synergy, you can achieve great gains.

Nate Silver, The Signal and the Noise
Pillars of Context

- The Internet of Things
- Sensors for location, light, motion, temperature
- Record, transmit, find something to control instruments

Semantic web, Big Data
- Data like massive data on people, places, things
- Information about everything accessible on the web

Digital mapping
- Every square inch of the world is mapped

IoT: Internet of Things
- Highly customized smart applications
- Wearable computers
  - Google glasses, Google driverless car

Managing Dynamic Context to Optimize Smart Interactions and Smart Services
Norha M. Villegas

- User-driven context management framework
- Context models at three different levels of abstraction
- Context monitoring and reasoning engine
- Personal web sphere model
- Personal web case study
- Goal: Make more offers to the user

IBM CAS Project of the Year 2011

Stream of Context

Instrument and Capture the Stream of Context

Stream of Context is Big Data

Killer Application

The Experiment—Volunteers
PITA—Practical Interdisciplinary Tractable Algorithms
Ulrike Stege

- Modeling and abstraction of interdisciplinary research questions as computational problems
- Model-based reasoning
- Human problem solving
- Algorithm design for NP-hard problems and for problems with very large data inputs
  - Computational biology
  - Bioinformatics
  - Cloud computing
  - Data anonymization
  - Integrated computational social science, computer science, cognitive science

CGAR—Computational Geometry And Robotics Lab
Sue Whitesides
http://cgars.uvic.ca

- Motion planning problems and robotics
- Computational geometry
- Graph layout and algorithms
- CGAR interests range from theoretical algorithm design to mechatronics and embedded systems design.

Mechatronics Lab—Self-Adaptive Systems
Mantis Cheng

- Blimp
- Hovercraft
- Explorer and rescuer

Software, electrical, computer and mechanical engineers working together
Day 4: 30-10-2013
Visit to Ballard, Trinity Western University and CASCADE Aerospace

Fuel Cell Applications
Ballard designs and manufactures market-leading clean energy PEM (proton exchange membrane) fuel cell stacks, modules as well as complete systems for both stationary and motive power applications. We can all lower the cost of energy AND enjoy a cleaner environment. Click below to learn more.
Cascade Aerospace Inc. is a division of IMP Group Limited - a proud Canadian company employing over 3,500 people worldwide. Headquartered in Halifax, Nova Scotia, IMP has been selected as one of Canada's Top 50 Best Managed Companies.

Cascade is a speciality aerospace and defence contractor focused on providing long-term integrated aircraft support programs for Original Equipment Manufacturers (OEMs), military, government and commercial customers. At Cascade Aerospace we strongly believe in the value of teaming - with our employees, our customers, our suppliers, and our communities. It is by "Teaming with the best" and working collaboratively with our many partners that we are able to offer custom-tailored solutions for each customer's unique requirements.

Our value proposition is that we build enduring customer relationships, and our strategic focus is customer satisfaction. It is a driver in all our decisions. Experience our creative, innovative, and performance-based company.
Day 5: 01-11-2013

University of Toronto:

MIE Newsletter
Department of Mechanical & Industrial Engineering | University of Toronto

Research Activities

Indo-Canadian Delegation Visits MIE

Three delegates of an Indo-Canadian Delegation visited Professor Ridha Ben Mrad and Adjunct Professor S. Eswar Prasad, on Friday, November 1.

The group has research interests in the areas Vibrations, Structure Stability and Rotor Dynamics, MEMS, Sensors and Nanomaterials, Nanotechnology and Water Resources and Irrigation Engineering. While the delegation (total of 26 members) spent their time in the Vancouver area Research Institutions and Universities, three professors from this group made a special trip to Toronto for the meeting at MIE.

All the members are from BMS College of Engineering, Visveswaraya Technological University, Bangalore, India. The group is looking for collaborative research programmes in the areas of their interest.

Photo (from L to R): Prof. L. Ravikumar, Department of Mechanical Engineering, Prof. M.S. Dharmaprakash, Department of Chemistry, Professor Ridha Ben Mrad (MIE) Prof. K.R. Suresh, Department of Civil Engineering.
Outcome of the visit

Possible collaboration with Canadian Universities

Departments of Chemical Engineering, Bio Technology, Chemistry and Physics:
The R&D activities of the departments mentioned above matches with the ongoing research activities of UBC, UVic, SFU, and University of Toronto. These departments can interact with the professors.
Probable research areas:
2. Thin Films,
3. Manufacturing and characterization of Nano-materials and Sensors
4. Metal Finishing, Deposition
5. Reaction Kinetics,
6. Electro Chemistry [Alloys]
Our areas of interest matches with research areas at UVic., and University of Toronto in the area of Nanomaterials, MEMS and Sensors. The Professors can associate with these universities for collaborative research and mitacs.

For Research collaborations interested faculty may contact for favourable interactions.

Prof. Rustom B. Bhiladvala, PhD, Yale University. Contact: 250-721-8616, EOW 521; rustomb@uvic.ca

Electrical Engineering Cluster (All Circuit Branches) – Research Areas
Communication, Signal Processing and Control
Computers, Software and Networking
Electronics and Energy
Electromagnetics and Photonics
Materials and Devices
In these areas, the interested faculty of Electrical cluster can associate with UBC, UVic., University of Toronto and SFU.
Contact: Prof. Vijay Bhargava
Green communications, cognitive and cooperative wireless systems, MIMO-OFDM systems, cross-layer analysis.
**Michael Adams, Ph.D. (British Columbia)**

Digital signal processing; image/video/audio processing and coding; digital geometry processing; wavelets, subdivision, and filter banks; algorithms; multimedia systems; data compression; computer graphics.

**Ashoka K. S. Bhat, Ph.D. (Toronto)**

Power electronic controls, high-frequency link power conversion-resonant and pulse with modulation, power converters for alternative energy sources, design of electronic circuits for power control.

**Mechanical Engineering cluster**

**Areas of research:**

Active research with first-rate laboratories. Focus is on research in leading edge technologies such as:

- Advanced Manufacturing
- Advanced Materials
- Aeronautics and Aerospace
- Biomedical Engineering
- Computational and Continuum Mechanics
- Computational Design and Computer Aided Engineering
- Alternate Energy Technologies and Systems
- Industrial Sensing and Optics
- Mechatronics and Controls
- Micro-Electromechanical Systems
- Ocean Engineering and Ocean Energy
- Robotics and Mechanisms
- Thermo fluids Science and Transport Phenomena
In these areas, the cluster department can associate with UBC, UVic., University of Toronto, and SFU.

Contact:

Ridha Ben Mrad, PhD, P.Eng., FCSME
Professor, Mechatronics and Microsystems Design Laboratory
Department of Mechanical and Industrial Engineering
University of Toronto
Email: rbenmrad@mie.utoronto.ca
Tel: 416-946-0689; Fax: 416-978-775

Prof. Eswar S. Prasad, Mechatronics and Microsystems Design Laboratory, Department of Mechanical and Industrial Engineering, University of Toronto

Dr. A. Srikantha Phani
Canada Research Chair (Tier 2)
Assistant Professor
Department of Mechanical Engineering
The University of British Columbia
2054-6250 Applied Science Lane
Vancouver, B.C., V6T 1Z4, Canada

Prof. Rustom B. Bhiladvala, PhD, Yale University. Contact: 250-721-8616, EOW 521; rustomb@uvic.ca

**Department of Civil Engineering**
The following are the few areas of research in the department:

2. Structural masonry- Earth quake resistance structures, Masonry Structures Material and Structural Components.
5. Environmental Engineering- quality issues related to water and air.

Research at UBC – vancour under the chairmanship of Dr. Nemy Bhantia matches with the areas of research at Civil department. The department may collaborate with IC- Impacts in the area of concrete technology and structural health monitoring. It can also look forward to associate with the university in the mitacs programme to depute the students to do their projects at UBC.
Similarly the department can also associate with Dr. Rishi Gupta of UVic., as his areas of research interest matches with some of the initiatives in the department.

Mechanical department, Civil department and Professors working in the area of water quality and sensors can explore the possibilities of establishing research colorations with Dr. Ridha Ben Mrad, Canadian chair at University of Toronto, department of Mechanical Engineering. He and his team has shown interest in establishing quality research. He also expressed to write joint research proposals to Indo-Canadian collaborative programmes.

Dr. L.Ravikumar          Dr. M.S.Dharmaprakash          Dr. K.R.Suresh.
B.M.S. COLLEGE OF ENGINEERING, BANGALORE-560 019

TECHNICAL EDUCATION QUALITY IMPROVEMENT PROGRAMME-II


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<td>1</td>
<td>Anil Kumar H M</td>
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# Names of the M.Tech Students Admitted During 2013-14 Selected for the Award of Teaching Assistantship

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<td>Nagabhushan Moudgalya .C.R</td>
<td>Civil Engineering</td>
<td>Transportation Engg &amp; Management</td>
</tr>
<tr>
<td>68.</td>
<td>Shambhulinga</td>
<td>Civil Engineering</td>
<td>Transportation Engg &amp; Management</td>
</tr>
<tr>
<td>69.</td>
<td>Ashwini.B.P</td>
<td>Civil Engineering</td>
<td>Transportation Engg &amp; Management</td>
</tr>
<tr>
<td>70.</td>
<td>Girish.T.</td>
<td>Civil Engineering</td>
<td>Transportation Engg &amp; Management</td>
</tr>
<tr>
<td>Sl.No</td>
<td>Student Name</td>
<td>Department</td>
<td>Title of the M.Tech. Course</td>
</tr>
<tr>
<td>-------</td>
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</tr>
<tr>
<td>71.</td>
<td>Abishek.K</td>
<td>Civil Engineering</td>
<td>Transportation Engg &amp; Management</td>
</tr>
<tr>
<td>72.</td>
<td>Ashish</td>
<td>Civil Engineering</td>
<td>Transportation Engg &amp; Management</td>
</tr>
<tr>
<td>73.</td>
<td>Deepak</td>
<td>Civil Engineering</td>
<td>Transportation Engg &amp; Management</td>
</tr>
<tr>
<td>74.</td>
<td>Madhu Kumar.R.T</td>
<td>Civil Engineering</td>
<td>Transportation Engg &amp; Management</td>
</tr>
<tr>
<td>75.</td>
<td>Basavaraj Mallikarjuna Rajoor</td>
<td>Civil Engineering</td>
<td>Transportation Engg &amp; Management</td>
</tr>
<tr>
<td>76.</td>
<td>Dhanalakshmi.M.</td>
<td>Civil Engineering</td>
<td>Transportation Engg &amp; Management</td>
</tr>
<tr>
<td>77.</td>
<td>Arjun.S.</td>
<td>Civil Engineering</td>
<td>Transportation Engg &amp; Management</td>
</tr>
<tr>
<td>78.</td>
<td>Veeramma.C.</td>
<td>Civil Engineering</td>
<td>Transportation Engg &amp; Management</td>
</tr>
<tr>
<td>79.</td>
<td>Prashant Hugar</td>
<td>Civil Engineering</td>
<td>Transportation Engg &amp; Management</td>
</tr>
</tbody>
</table>

NAME OF THE M.Sc [ENGG] BY RESEARCH STUDENT ADMITTED DURING 2013-14 SELECTED FOR THE AWARD OF TEACHING ASSISTANTSHIP

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Name of the Student</th>
<th>Department</th>
<th>Title of the M.Sc Engg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Namratha Bharadwaj</td>
<td>Civil Engineering</td>
<td>Civil Engineering</td>
</tr>
</tbody>
</table>
# ANNEXURE-IV

## DETAILS OF FACULTY MEMBERS WHO ARE PERMITTED TO ATTEND THE FOLLOWING ACADEMIC PROGRAMS BY THE SUB-COMMITTEE OF BOG BY CIRCULATION

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Faculty, Designation &amp; Dept.</th>
<th>Details of Program</th>
<th>Place</th>
<th>Workshop/Conf. Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Dr. Veena Jawali, Prof., Mathematics</td>
<td>FDP on &quot;Stochastic Process in Engineering &amp; Technology&quot;</td>
<td>RVCE, Bangalore</td>
<td>July 18–20, 2013</td>
</tr>
<tr>
<td>11.</td>
<td>Dr. M. Ramachandra Professor, ME</td>
<td>&quot;Training on Advanced Materials Characterization and Analyses&quot;</td>
<td>RVCE, Bangalore</td>
<td>July 29, 2013-August 2, 2013</td>
</tr>
<tr>
<td>15.</td>
<td>Dr. Ravishankar B Prof &amp; HOD, IEM</td>
<td>Attachment to Industry and R &amp; D Organizations, /Capacity Development</td>
<td>SAP Mumbai</td>
<td>July 30-2013</td>
</tr>
<tr>
<td>Sl. No.</td>
<td>Name of the Faculty, Designation &amp; Dept.</td>
<td>Details of Program</td>
<td>Place</td>
<td>Workshop/Conf. Dates</td>
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<tr>
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</tr>
<tr>
<td>17.</td>
<td>Dr.K.Ganesh, Asst.Professor, CV</td>
<td>Workshop on &quot;Warm mis Asphalt-challenges &amp; way forward&quot;</td>
<td>IIT, Madras</td>
<td>August 8-9, 2013</td>
</tr>
<tr>
<td>19.</td>
<td>Sri.G.Dilip Maruthi, Asst.Professor, ME</td>
<td>Workshop on &quot;Robotics and Low cost Automation&quot;</td>
<td>RVCE, Bangalore</td>
<td>August 12-17, 2013</td>
</tr>
<tr>
<td>28.</td>
<td>Dr.B.S.Nagabhushana, Professor, ECE</td>
<td>Five days workshop on &quot;Wireless Communication and Sensor Networks&quot;</td>
<td>RVCE, Bangalore</td>
<td>August 20-24, 2013</td>
</tr>
<tr>
<td>Sl. No.</td>
<td>Name of the Faculty, Designation &amp; Dept.</td>
<td>Details of Program</td>
<td>Place</td>
<td>Workshop/Conf. Dates</td>
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</tr>
<tr>
<td>36.</td>
<td>Sri. Madhava Murthy, Asst.Professor, ME</td>
<td>FDP on “Polymer Composites”</td>
<td>SJCE, Mysore</td>
<td>August 30-31, 2013</td>
</tr>
<tr>
<td>37.</td>
<td>Dr. S. Srinivas, Asso. Professor, ME</td>
<td>FDP on “Polymer Composites”</td>
<td>SJCE, Mysore</td>
<td>August 30-31, 2013</td>
</tr>
<tr>
<td>38.</td>
<td>Dr. M. Ramachandra, Professor, ME</td>
<td>FDP on “Polymer Composites”</td>
<td>SJCE, Mysore</td>
<td>August 30-31, 2013</td>
</tr>
<tr>
<td>39.</td>
<td>Dr. M.V. Murugendrappa, Asso. Professor, Physics</td>
<td>FDP on “Polymer Composites”</td>
<td>SJCE, Mysore</td>
<td>August 30-31, 2013</td>
</tr>
<tr>
<td>40.</td>
<td>Dr. Y. Chandrasekhar Rddy, Professor &amp; M.O., Chemistry</td>
<td>FDP on “Polymer Composites”</td>
<td>SJCE, Mysore</td>
<td>August 30-31, 2013</td>
</tr>
<tr>
<td>41.</td>
<td>Smt. B.N. Beenalal Mata, Asso.Professor, ML</td>
<td>International Conference on “Youth against Cancer”</td>
<td>Sindhi College, Bangalore</td>
<td>August 30-31, 2013</td>
</tr>
<tr>
<td>42.</td>
<td>Sri. Ajay Kumar Devarapalli, Asst.Professor, IT</td>
<td>One day National Workshop on “Patents &amp; Innovations”</td>
<td>Malnad College of Engineering, Hassan</td>
<td>August 31-2013</td>
</tr>
<tr>
<td>43.</td>
<td>Smt. Namratha S.N., Asst.Professor, IT</td>
<td>One day National Workshop on “Patents &amp; Innovations”</td>
<td>Malnad College of Engineering, Hassan</td>
<td>August 31-2013</td>
</tr>
<tr>
<td>44.</td>
<td>Dr. G.N. Ramashaiah, Asso.Professor, CHL</td>
<td>One day National Workshop on “Patents &amp; Innovations”</td>
<td>Malnad College of Engineering, Hassan</td>
<td>August 31-2013</td>
</tr>
<tr>
<td>45.</td>
<td>Dr. M.S. Dharmaparakash, Professor, Chemistry</td>
<td>“One day Workshop on World Bank Procedures for procurement of goods, equipments &amp; services through PMSS”</td>
<td>NMAM Institute of Technology, Nitte, Mangalore</td>
<td>September 2, 2013</td>
</tr>
<tr>
<td>46.</td>
<td>Dr. K.R. Suresh, Professor, CV</td>
<td>“One day Workshop on World Bank Procedures for procurement of goods, equipments &amp; services through PMSS”</td>
<td>NMAM Institute of Technology, Nitte, Mangalore</td>
<td>September 2, 2013</td>
</tr>
<tr>
<td>48.</td>
<td>Dr. Chandrasree Das, Asst.Professor, EEE</td>
<td>International Conference on “Thin Films &amp; Applications”</td>
<td>SASTRA University, Thanjavur</td>
<td>September 11-13, 2013</td>
</tr>
<tr>
<td>49.</td>
<td>Dr. M.S. Dharmaparakash, Professor, Chemistry</td>
<td>“IEEE Workshop on Nanotechnology and Micro/Nano Sensors”</td>
<td>Centre for Nanoscience &amp; Engineering, IISc, Bangalore</td>
<td>September 19-21, 2013</td>
</tr>
<tr>
<td>Sl. No.</td>
<td>Name of the Faculty, Designation &amp; Dept.</td>
<td>Details of Program</td>
<td>Place</td>
<td>Workshop/Conf. Dates</td>
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<tr>
<td>50.</td>
<td>Dr. Rathanraj K.J., Professor, IEM</td>
<td>Attend virtual &quot;SUPRA SAE INDIA&quot;</td>
<td>KIIT, Bhubaneswar</td>
<td>September 20-21, 2013</td>
</tr>
<tr>
<td>52.</td>
<td>Sri. Paran Jyoti Sarma, Asst. Professor, CHL</td>
<td>&quot;TEQIP Innovation Meet&quot;</td>
<td>Institute of Chemical Technology, Mumbai</td>
<td>September 25-26, 2013</td>
</tr>
<tr>
<td>55.</td>
<td>Dr. Samita Maitra, Professor &amp; HOD, CHL</td>
<td>&quot;International Conference on Women Empowerment Global Perspective&quot;</td>
<td>Vivekananda Kendra, Kanyakumari</td>
<td>September 27-28, 2013</td>
</tr>
<tr>
<td>56.</td>
<td>Dr. B. Kanmani, Professor &amp; HOD, TCE</td>
<td>&quot;International Conference on Women Empowerment Global Perspective&quot;</td>
<td>Vivekananda Kendra, Kanyakumari</td>
<td>September 27-28, 2013</td>
</tr>
<tr>
<td>57.</td>
<td>Dr. Madhu G, Asst. Professor, Chemistry Department</td>
<td>Drug Discovery India 2013</td>
<td>Select Biosciences India Pvt Ltd., Bangalore</td>
<td>September 27-28, 2013</td>
</tr>
<tr>
<td>58.</td>
<td>Dr. Kirti Agarwal, Professor, Chemistry Dept</td>
<td>Drug Discovery India 2013</td>
<td>Select Biosciences India Pvt Ltd., Bangalore</td>
<td>September 27-28, 2013</td>
</tr>
<tr>
<td>59.</td>
<td>Dr. H.N. Suma, Professor, ML</td>
<td>Workshop on Neural Networks, Fuzzy Logic and Pattern Recognition for Engineering &amp; Health Care</td>
<td>MSRIT, Bangalore</td>
<td>September 27-29, 2013</td>
</tr>
<tr>
<td>60.</td>
<td>Smt. Joshi Manisha Shivram, Asst. Professor, ML</td>
<td>Workshop on Neural Networks, Fuzzy Logic and Pattern Recognition for Engineering &amp; Health Care</td>
<td>MSRIT, Bangalore</td>
<td>September 27-29, 2013</td>
</tr>
<tr>
<td>62.</td>
<td>Dr. Gowrishankar, Professor &amp; HOD, CSE</td>
<td>&quot;International Workshop on Faculty Leadership on Embedded and Mobile Software&quot;</td>
<td>JECRC UDMA College of Engineering, Jaipur</td>
<td>September 30 - October 4, 2013</td>
</tr>
<tr>
<td>Sl. No.</td>
<td>Name of the Faculty, Designation &amp; Dept.</td>
<td>Details of Program</td>
<td>Place</td>
<td>Workshop/Conf. Dates</td>
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<tr>
<td>65.</td>
<td>Dr. S. Srinivas, Asst. Professor, ME</td>
<td>“E-Foundry: Casting Design and Simulation”</td>
<td>IIT-Madras, Chennai</td>
<td>October 4-5, 2013</td>
</tr>
<tr>
<td>71.</td>
<td>Dr. Rudra Naik, Asst. Professor, ME</td>
<td>International Conference &amp; Exhibition on Additive Manufacturing Technologies – AM 2013</td>
<td>NIMHANS Convention Centre, Bangalore</td>
<td>October 7-8, 2013</td>
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<tr>
<td>Sl. No.</td>
<td>Name of the Faculty, Designation &amp; Dept.</td>
<td>Details of Program</td>
<td>Place</td>
<td>Workshop/Conf. Dates</td>
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</tr>
<tr>
<td>76.</td>
<td>Dr.G.Varaprasad, Asso.Professor, CSE</td>
<td>Attend &quot;UGC Research Project Meeting&quot;</td>
<td>University Grants Commissions, New Delhi</td>
<td>October 9, 2013</td>
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<tr>
<td>78.</td>
<td>Sri.Harish Mekali, Asst.Professor, ECE</td>
<td>Workshop on &quot;Introduction to Robotics&quot;</td>
<td>JNNCE, Shimoga</td>
<td>October 22-23, 2013</td>
</tr>
<tr>
<td>79.</td>
<td>Sri.B.Venkatesh, Asst.Professor, EEE</td>
<td>Workshop on &quot;Introduction to Robotics&quot;</td>
<td>JNNCE, Shimoga</td>
<td>October 22-23, 2013</td>
</tr>
<tr>
<td>80.</td>
<td>Dr.R.V.Ranganath, Professor &amp; HOD, CV</td>
<td>Paper Presentation in International Conference on &quot;Innovations in Concrete For Meeting Infrastructure Challenge&quot;</td>
<td>NAC-Hitex, Hyderabad</td>
<td>October 24-26, 2013</td>
</tr>
<tr>
<td>84.</td>
<td>Dr.K.J.Rathanraj, Professor, IEM</td>
<td>Attend demonstration of Rapid Prototyping machine</td>
<td>SEEPZ, Mumbai</td>
<td>October 29, 2013</td>
</tr>
<tr>
<td>Sl. No.</td>
<td>Name of the Faculty, Designation &amp; Dept.</td>
<td>Details of Program</td>
<td>Place</td>
<td>Workshop/Conf. Dates</td>
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<tr>
<td>91.</td>
<td>Sri.R.Suresh Kumar, Asst.Professor, Mechanical Engineering</td>
<td>FDP on &quot;Composite Coating Technologies&quot;</td>
<td>PESIT, Bangalore</td>
<td>October 28-29, 2013</td>
</tr>
<tr>
<td>93.</td>
<td>Dr.G.N.Sekhar, Vice Principal &amp; TEQIP Coordinator</td>
<td>Discussion with Mentors &amp; HOD's</td>
<td>V.R.Siddartha College of Engineering, Vijayawada</td>
<td>November 16-17, 2013</td>
</tr>
<tr>
<td>94.</td>
<td>Dr.R.V.Ranganath, Professor &amp; HOD, Civil Engineering</td>
<td>Discussion with Mentors &amp; HOD's</td>
<td>V.R.Siddartha College of Engineering, Vijayawada</td>
<td>November 16-17, 2013</td>
</tr>
<tr>
<td>95.</td>
<td>Dr.K.Mallikarjuna Babu, Principal</td>
<td>Pilot Implementation of the Quality Improvement Program</td>
<td>India Habitat Centre, New Delhi</td>
<td>November 18, 2013</td>
</tr>
<tr>
<td>97.</td>
<td>Dr.Chandesree Das, Asst.Professor, Electrical &amp; Electronics</td>
<td>Workshop on &quot;Power Systems Protection&quot;</td>
<td>Power System Division, CRPI, Bangalore</td>
<td>November 18-21, 2013</td>
</tr>
<tr>
<td>98.</td>
<td>Sri.D.Ramesh Kumar, Asst.Professor, Electrical &amp; Electronics</td>
<td>Workshop on &quot;Power Systems Protection&quot;</td>
<td>Power System Division, CRPI, Bangalore</td>
<td>November 18-21, 2013</td>
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</table>

**THE DETAILS OF FACULTY MEMBERS WHO HAVE ATTENDED/PROPOSED TO ATTEND INTERNATIONAL PROGRAMS OUTSIDE THE COLLEGE**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Faculty, Designation &amp; Dept.</th>
<th>Details of Program</th>
<th>Place</th>
<th>Workshop/Conf. Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dr.S.Girish, Professor, Civil Engineering</td>
<td>Paper presentation at 7th International Conference on Self-Compacting Concrete and 1st Conference on Rheology &amp; Processing of Construction Materials</td>
<td>Paris, France</td>
<td>September 2-4, 2013</td>
</tr>
<tr>
<td>2</td>
<td>Dr.Mamatha M.N Asso.Professor, Instrumentation Dept.</td>
<td>International Conference on Bioinformatics, Computational Biology and Biomedical Engineering</td>
<td>World Academy of Science, Engg, &amp; Tech River View Hotel, Singapore</td>
<td>September 12-13, 2013</td>
</tr>
</tbody>
</table>
THE DETAILS OF FACULTY MEMBERS WHO HAVE ATTENDED/PROPOSED TO ATTEND PROGRAMS (UNDER INDUSTRY VISIT) OUTSIDE THE COLLEGE

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Faculty, Designation &amp; Dept.</th>
<th>Details of Program</th>
<th>Place</th>
<th>Dates of Visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Smt. Vijayalakshmi K., Asso. Professor, ML</td>
<td>Visit “Sri Chaitra Tirunal Institute of Medical Sciences &amp; Technology”</td>
<td>Thiruvananthapuram</td>
<td>August 30, 2013</td>
</tr>
<tr>
<td>2.</td>
<td>Smt. Joshi Manisha Shivram, Asst. Professor, ML</td>
<td>Visit “Sri Chaitra Tirunal Institute of Medical Sciences &amp; Technology”</td>
<td>Thiruvananthapuram</td>
<td>August 30, 2013</td>
</tr>
<tr>
<td>4.</td>
<td>Sri. R. Shivalakumar, Asst. Professor, CHL</td>
<td>Visit “Mangalore Chemical &amp; Fertilizers”</td>
<td>Mangalore</td>
<td>August 30, 2013</td>
</tr>
<tr>
<td>5.</td>
<td>Sri. G. Dillip Manuthi, Asst. Professor, ME</td>
<td>Visit “ISRO”</td>
<td>Bangalore</td>
<td>September 20, 2013</td>
</tr>
</tbody>
</table>

THE DETAILS OF FACULTY MEMBERS WHO HAVE OBTAINED LIFE TIME MEMBERSHIP FOR ISAMPE (INDIAN SOCIETY FOR ADVANCEMENT OF MATERIALS & PROCESS ENGINEERING)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Faculty</th>
<th>Designation &amp; Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Dr. M. Ramachandra</td>
<td>Professor, ME</td>
</tr>
<tr>
<td>2.</td>
<td>Dr. S. Srinivas</td>
<td>Asso. Professor, ME</td>
</tr>
<tr>
<td>3.</td>
<td>Sri. Madhav Murthy</td>
<td>Asst. Professor, ME</td>
</tr>
<tr>
<td>4.</td>
<td>Sri. Ram Rohith V.</td>
<td>Asst. Professor, ME</td>
</tr>
<tr>
<td>5.</td>
<td>Sri. Prabhu Swamy N.R</td>
<td>Asst. Professor, ME</td>
</tr>
<tr>
<td>Sl. No.</td>
<td>Name of the Students &amp; Dept.</td>
<td>Details of Program</td>
</tr>
<tr>
<td>-------</td>
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</tr>
</tbody>
</table>
Details of In-House Faculty Training/Conference/Workshops conducted & proposed for conduction

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Name of the Department</th>
<th>Title of the Conference/Workshop</th>
<th>Date of Training/Workshop/Conference</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.</td>
<td>Instrumentation Technology</td>
<td>Five Days Faculty Orientation Programme</td>
<td>September 26-30 &amp; October 1, 2013</td>
</tr>
<tr>
<td>5.</td>
<td>Electronics &amp; Communication</td>
<td>ARM Made Easy-3 (Level-1)</td>
<td>October 5-6, 2013</td>
</tr>
<tr>
<td>7.</td>
<td>Computer Science Cluster</td>
<td>Five days Workshop on “RAD CERTIFICATION WORKSHOP”</td>
<td>October 28 – November 1, 2013</td>
</tr>
<tr>
<td>10.</td>
<td>TEQIP</td>
<td>One Day Workshop on preparation of SWOT Analysis &amp; Institutional Developmental Plan for RUSA Programme</td>
<td>November 12, 2013</td>
</tr>
</tbody>
</table>

Details of Finishing School conducted & proposed for conduction to students

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Name of the Department</th>
<th>Details</th>
<th>Dates of Conduction</th>
</tr>
</thead>
</table>
### THE DETAILS OF STAFF MEMBERS WHO HAVE ATTENDED/PROPOSED TO ATTEND PROGRAMS OUTSIDE THE COLLEGE

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Staff, Designation &amp; Dept.</th>
<th>Details of Program</th>
<th>Place</th>
<th>Workshop/Conf. Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sl. No.</td>
<td>Name of the Staff, Designation &amp; Dept.</td>
<td>Details of Program</td>
<td>Place</td>
<td>Workshop/Conf. Dates</td>
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</tr>
<tr>
<td>32.</td>
<td>Sri. V. Subramaniyam, Mechanic, ME</td>
<td>“Barriers To Success”</td>
<td>Kriti Business Solutions, Bangalore</td>
<td>August 24, 2013</td>
</tr>
<tr>
<td>39.</td>
<td>Sri. R. Balaji, Procurement Manager, TEQIP Office</td>
<td>“One day Workshop on World Bank Procedures for procurement of goods, equipments &amp; services through PMSS”</td>
<td>NMAM Institute of Technology, Nitte, Mangalore</td>
<td>September 2, 2013</td>
</tr>
<tr>
<td>41.</td>
<td>Sri. R. Ramkrishna, Helper, ME</td>
<td>“Barriers to Success”</td>
<td>Kriti Business Solutions, Bangalore</td>
<td>September 26, 2013</td>
</tr>
<tr>
<td>42.</td>
<td>Sri. H.N. Devaraj, Helper, ME</td>
<td>“Barriers to Success”</td>
<td>Kriti Business Solutions, Bangalore</td>
<td>September 26, 2013</td>
</tr>
<tr>
<td>43.</td>
<td>Sri. D. Venkataswamy, Helper, ME</td>
<td>“Barriers to Success”</td>
<td>Kriti Business Solutions, Bangalore</td>
<td>September 26, 2013</td>
</tr>
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<td>44.</td>
<td>Sri. R.C. Puttawamy, I/C Foraman, ME</td>
<td>“Barriers to Success”</td>
<td>Kriti Business Solutions, Bangalore</td>
<td>September 26, 2013</td>
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<td>45.</td>
<td>Smt. Shobha Ranj, P, SQA, CS</td>
<td>“Barriers to Success”</td>
<td>Kriti Business Solutions, Bangalore</td>
<td>September 26, 2013</td>
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<td>46.</td>
<td>Smt. B. Sowmya, Mechanic, CS</td>
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<td>Kriti Business Solutions, Bangalore</td>
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<td>47.</td>
<td>Smt. M. Shanthakumari, Attender, AAO Office</td>
<td>“Barriers to Success”</td>
<td>Kriti Business Solutions, Bangalore</td>
<td>September 26, 2013</td>
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<tr>
<td>Sl. No.</td>
<td>Name of the Staff, Designation &amp; Dept.</td>
<td>Details of Program</td>
<td>Place</td>
<td>Workshop/Conf. Dates</td>
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<td>49.</td>
<td>Smt. M. Leeavathi, SDA, Stores Section</td>
<td>&quot;Barriers to Success&quot;</td>
<td>Kruti Business Solutions, Bangalore</td>
<td>September 26, 2013</td>
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<td>50.</td>
<td>Smt. Saraswathi S.R, Office Asst., Academic Sec</td>
<td>&quot;Barriers to Success&quot;</td>
<td>Kruti Business Solutions, Bangalore</td>
<td>September 26, 2013</td>
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<td>52.</td>
<td>Sri. A. Varadaraju, SDA, Academic Section</td>
<td>&quot;Barriers to Success&quot;</td>
<td>Kruti Business Solutions, Bangalore</td>
<td>September 26, 2013</td>
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<td>53.</td>
<td>Smt. Bharathi J, Office Asst., Stores Section</td>
<td>&quot;Barriers to Success&quot;</td>
<td>Kruti Business Solutions, Bangalore</td>
<td>September 26, 2013</td>
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<tr>
<td>54.</td>
<td>Dr. N. Chowdappa, Librarian, Library &amp; Information Centre</td>
<td>International Conference on &quot;Convergence of Science, Engineering &amp; Management in Education &amp; Research&quot;</td>
<td>Dayananda Sagar Institutions, Bangalore</td>
<td>September 26-27, 2013</td>
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<td>55.</td>
<td>Sri. T. N. Jagadeesh, Typist, ME</td>
<td>&quot;Computer Awareness &amp; MS Office&quot;</td>
<td>Advanced Training Institute, Mumbai</td>
<td>October 7-18, 2013</td>
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</tbody>
</table>
Action plan to achieve target of expenditure for the period from 1st November 2013 to December 2014

Name of the institution: B.M.S. COLLEGE OF ENGINEERING, BANGALORE-560 019

Total Funds allocated for the entire project period: 1250 lakhs
Total expenditure incurred as on 30th Sep 2013: 220.86 lakhs
Balance amount available as on 30th Sep 2013: 1029.14 lakhs

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name of the activity</th>
<th>Actual Total Expenditure upto Sept. 2013</th>
<th>Actual Expenditure during Oct. 2013</th>
<th>Action plan to achieve the target</th>
<th>Rs. in lakhs Grand total</th>
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<tbody>
<tr>
<td>1</td>
<td>Procurement</td>
<td>118.49</td>
<td>17.9</td>
<td>Nov-13</td>
<td>Dec-13</td>
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<td>2</td>
<td>Assistantship*</td>
<td>30.86</td>
<td>1.6</td>
<td>14.22</td>
<td>11.8</td>
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<td>3</td>
<td>R&amp;D</td>
<td>3.01</td>
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<td>4</td>
<td>FSD</td>
<td>36.97</td>
<td>3.62</td>
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<td>5</td>
<td>I-H Cells</td>
<td>14.76</td>
<td>3.26</td>
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<td>6</td>
<td>Institutional Management Capacity Enhancement</td>
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<td>0</td>
<td>15</td>
<td>10</td>
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<td>7</td>
<td>Reforms</td>
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<td>8</td>
<td>Student Support</td>
<td>2.62</td>
<td>1.25</td>
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<td>9</td>
<td>IDC</td>
<td>8.31</td>
<td>1.31</td>
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<td><strong>Grand Total</strong></td>
<td></td>
<td><strong>220.86</strong></td>
<td><strong>24.87</strong></td>
<td><strong>88.67</strong></td>
<td><strong>136.3</strong></td>
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</tbody>
</table>

*Note: This allocation is less than the target by Rs. 45.73 lakhs in view of the closure of the project during Dec 2014. If, it is extended by 3 months i.e, 31.3.2015, the total amount can be spent on the same head. Considering Dec 14 as the closure of the project, this amount is re-distributed under the heads of R&D & Institutional Management Capacity Enhancement.

Principal

Chairman
Bog Sub-Committee