Committee: BOS Meeting

14\textsuperscript{th} BOS meeting was held on 17/07/2021 (Saturday) at 11.00 am through Google meet platform.

Members present:

Internal Members:

1. Dr. H. Pradeepa
2. Smt.R. Radha
3. Dr.R. Chidanandappa
4. Dr. Shankar Nalinakshah
5. Ms. Sonaxi Bhagawan Raikar
6. Dr. Jayashankar V N
7. Dr. B.R. Ananthapadmanabha
8. Dr. Likith Kumar M V
9. Dr. S R Gurumurthy
10. Dr. H. V. Saikumar
11. Dr. Mohana Lakshmi J
12. Dr. Gowri Shankar
13. Dr. Omkar S Powar

External BOS members:

1. Dr. Ashok S
   Professor, NIT, Calicut (University Nominee)
2. Dr. Shubanga
   Professor & Head, EEE, NITK, Surathkal
3. Hariram Satheesh
   Principal Satheesh
   Assistant Professor, SJCE, Mysuru

Agenda and Resolution:

1. To welcome the members of BOS.
2. To discuss draft curriculum structure and blown up syllabus of UG & PG streams
3. Read & Confirm 13\textsuperscript{th} BOS meeting.
Minutes:

Dr. H. Pradeep, Associate Professor & Head, EEED& Chairman BOS, Welcomed all the internal and external BOS members.

Dr. H. Pradeep presented the blown-up syllabi for UG and PG programmes for the year 2021-22 [all batches]. He also highlighted the modifications incorporated in the syllabus and invited suggestions from the honourable members of the board.

Following suggestions were received from the honourable members:

**UG Programme**

**Dr. Ashok S**
- Discussed on mission and vision of the department and suggested to revise in accordance with NEP focusing on skill development and start-up.
- Suggested that 1 credit to NPTEL elective is too low and preferred amendment to 3 credits.
- Put up the opinion on evaluating MOOC elective by the institute
- Suggested the inclusion of wave propagation in field theory for communication aspects.
- Incorporate software packages in theory. Simulation based exercise and assignment can be done.
- In the course testing and commissioning can include BIS, IEC and European standard (any international acceptable standards)
- In EV course include concepts of metro and projects pertaining to it.
- Optimization course to be application from electric engineering
- Industry internship on long term basis to be provided.
- Provide an opportunity for students to complete 8th semester electives in 7th semester so that they can take up complete internship.
- CAD can be incorporated as a tutorial in Electrical Machine design.

**Dr. Shubanga**
- Suggested to increase the number of MOOC courses.
- Evaluation to be done by subject expert.
- Discussed regarding credit calculation for HVE lab.
- Prompted to exercise skill and design-oriented courses in accordance with NEP
- In subjects such as signals, power electronics and power systems, mini projects to be done wtr to NEP model.

**Mr. Hariram Satheesh**
- Suggest to include smart sensor with condition monitoring.

**Dr. Mohan**
- Stressed on inclusion of CAD in machine design.
- Sought clarification on course with PLC & Automation.
With the aforesaid suggestions, the committee Approved the UG syllabus.

PG-PS Programme

Dr. Ashok S
- Sought clarification on Project phase-I and Phase-II
- Suggested a course on Wide Area Monitoring and Control.
- In the course battery management system, battery testing to be included. This can provide consultancy to the department.
- In the course BMS theory can be limited and more practical aspects to be introduced.
- Suggested cyber security in smart grid as a significant area.

Dr. Shubanga
- Suggested to include power system dynamics in semester I and stability in semester II

Mr. Hariram Satheesh
- Informed internship will be provided for not less than 6 months.
- Suggested to include communication aspects in smart grid and EV.

PG-CAID Programme

Dr. Ashok S
- Sought clarification of the course with respect to power electronics and drives and industrial drives and control.

Dr. Shubanga
- Sought Clarification on the number of courses common among the 2 PG programmes.

Mr. Hariram Satheesh
- Suggested to include condition monitoring, diagnosis, machine communication bringing aspects of IOT.
- Suggested to incorporate, Industry 4.0 and industrial IOT into the course.
- Agreed to provide suggestions and inputs for separate courses.

With the aforesaid suggestions, the committee Approved the PG syllabus for both PS & CAID programmes

Dr. H Pradeepa thanked all the members for attending the meeting, taking part in deliberations and giving valuable suggestions.

Smt. R. Radha

UG Coordinator

Dr. H. Pradeepa
Committee: Department Advisory Board

Minutes of the meeting held on 15/07/2021 (Thursday) at 04.30 p.m. through Google meet platform.

Members present:

Internal Members:

1. Dr. H. Pradeepa
2. Smt. R. Radha
3. Dr. R. Chidanandappa
4. Dr. Shankar Nalinakshan
5. Ms. Sonaxi Bhagawan Raikar
6. Dr. Jayashankar V N
7. Dr. B. R. Ananthapadmanabha
8. Dr. Likith Kumar M V
9. Dr. S R Gurumurthy
10. Dr. H. V. Saikumar
11. Dr. Mohana Lakshmi J
12. Dr. Rohit K Mathew
13. Dr. Gowri Shankar
14. Dr. Omkar S Powar

Department Industrial Advisory Board

1. Mr. Rajashekar S
   Open Systems International, Bengaluru
2. Kumaresh Ramaswamy
   Deputy General Manager – Project & Offer Quality
   Schneider Electric
3. Dr. Girish V
   Executive Engineer, KPTCL, Mysuru
4. Dr. Sanjeev Naik
   Specialist Automotive division, L&T Technologies Ltd., Bengaluru
5. Mr. Sandeep N R
   Ingersoll Rand, Bengaluru

Department Alumni Advisory Board

1. Dr. Rajanna S
   Professor, MCE, Hassan
2. Mr. Ravi Das
Business Technology Analyst, Deloitte, Bengaluru

3. **Mr. Pradyumna Bhat**  
Sr. Engineer, Tala ELXsi, Bengaluru

4. **Mrs. Prithvi Ramesh**  
Sr. Engineer, PR&DC, Bengaluru

**Agenda and Resolution:**

1. To welcome the members of Department Advisory Board (DIAB & DAAB).
2. To discuss draft curriculum structure and blown up syllabus of UG & PG streams
3. Any other academic issues.

**Minutes:**

1. Professor Radha R welcomed all the stake holders, alumni and student members.
2. Dr. M. V. Likith Kumar presented the blown-up syllabi for UG and PG programmes for the year 2021-22 [all batches]. He also highlighted the modifications incorporated in the syllabus and invited suggestions from the honourable members of the board.

Following suggestions were received from the honourable members:

**UG Programme**

**Suggestions from DIAB Members:**

1. **Kumaresh Ramaswamy**
   - Suggested to include concepts related to energy dilemma and sustainable challenge for electricity.
   - The concepts can be linked through activity or assignment.
   - Suggested to include SF6 free circuit breaker in Switch gear and Protection.
   - Course on Electricity Act may be included as Open elective
   - There is a lot of International Conferences of "Future is Electric", "All Electric World" etc., which Students needs to be aware of.
   - The co-relation of Power Quality to Power Conversion etc., is to be stressed upon.

2. **Mr. Sandeep N R**
   - Sought clarification regarding use of Bloom’s taxonomy in curriculum.

3. **Mr. Rajashekar S** (Provided his suggestions through mail)
   - Formatting and proof-reading have to be improved.
   - Positioning of "Power Electronics" course in 6th sem.: This has to be in 4th or 5th sem, as it is needed for better understanding of subjects like Renewables, control systems, etc.
Battery management systems: This needs some supporting subjects like EV, Energy management in previous semesters. Otherwise, this has to be moved to 8th sem.

Signals and systems & network analysis are in the same semester. They shall be in two different semesters.

There are two courses by names; Smart Grid and RE integration and another by Smart Grid. They are not very different. Also, in first course there is no content on RE integration.

Reconsider, clubbing of courses in the Electives.

Suggestions from DAAB members

1. Dr. Rajanna S
   - Suggested to incorporate about 30% of simulation in Core Subjects.
   - Suggested to increase credit allotment of Project by reducing the number of subjects.
   - Incorporate laboratory component for 1st year BEE course.

2. Mr. Ravi Das
   - Suggested OOPS concept to be included in Microcontrollers and LIC which would help students to carry out mini projects/projects.

3. Mr. Pradyumna Bhat
   - Suggested to provide exposure on AUTOCAD to students in EMD

M.Tech (Power Systems & CAID)

Suggestions from DIAB Members:

1. Kumaresh Ramaswamy
   - Focussed on Urban Neutrality and suggested to create awareness on All Electric World
   - Concepts on reliability indices and quality of power can be incorporated.

2. Mr. Sandeep N R
   - Suggested to incorporate MATLAB for electric drives.
   - Cyber Security for drives can be included as an elective.

3. Sanjeev Naik
   - Appreciated the syllabus of PG- PS & CAID

4. Mr. Rajashekar S (Provided his suggestions through mail. The suggestions are applicable to both PS and CAID programmes)
Many UG courses are repeated. Power electronics & drives, Devices etc. These can be made as refresher topics or pre-requisites.
- Applied mathematics topics are already covered in UG.
- The above courses may be replaced with new courses as mandatory ones.

Suggestions from DAAB members

1. Dr. Rajanna S
2. Mrs. Prithvi R
3. Suggested to emphasize more on projects.
4. Commented on inclusion of optimization techniques.

Dr. H Pradeepa thanked all the members for attending the meeting, taking part in deliberations and giving valuable suggestions.

Smt. R. Radha
UG Coordinator

Dr. H. Pradeepa
HO DEEE
# Department of Electrical & Electronics Engineering

## Changes in the syllabus for the academic year 2021-22

### New Elective Course Introduced 2020-21

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Course Title</th>
<th>Course Code</th>
<th>UG/PG</th>
<th>Reason for Introduction</th>
<th>Remarks, if any</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Semiconductor Devices and Circuits</td>
<td>EE5M09</td>
<td>UG</td>
<td>Student feedback during exit meeting</td>
<td>Swayam course</td>
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<tr>
<td>2</td>
<td>Agricultural Engineering</td>
<td>EE7O05</td>
<td>UG</td>
<td>Recommended by Course instructor Dr. Shankar Nalinakshan</td>
<td>Open elective</td>
</tr>
<tr>
<td>3</td>
<td>Operations Research</td>
<td>EE7O06</td>
<td>UG</td>
<td>Recommended by Course instructor Dr. Likith kumar</td>
<td>Open elective</td>
</tr>
<tr>
<td>4</td>
<td>Electric Vehicles</td>
<td>EE7E301</td>
<td>UG</td>
<td>Recommended by Course instructor Dr. Jayasankar V N</td>
<td>Elective</td>
</tr>
<tr>
<td>5</td>
<td>Battery Management Systems</td>
<td>MPS1E105</td>
<td>PG-PS</td>
<td>Recommended by Course instructor Dr. Chidanandappa and Dr. Jayasankar V N</td>
<td>-</td>
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<tr>
<td>6</td>
<td>Control Systems</td>
<td>MPS1E205</td>
<td>PG-PS</td>
<td>Recommended by Course instructor Dr. H Pradeepa</td>
<td>-</td>
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<tr>
<td>7</td>
<td>Distributed Generation and Microgrid</td>
<td>MPS1E206</td>
<td>PG-PS</td>
<td>Recommended by Course instructor Dr. Likith kumar</td>
<td>-</td>
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<tr>
<td>8</td>
<td>Electric Vehicles</td>
<td>MPS2E306</td>
<td>PG-PS</td>
<td>Recommended by Course instructor Dr. Jayasankar V N</td>
<td>-</td>
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<td>9</td>
<td>Wide Area Monitoring and Control</td>
<td>MPS2E407</td>
<td>PG-PS</td>
<td>Recommended by BOS member – Dr. Ashok S</td>
<td>-</td>
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<tr>
<td>10</td>
<td>Electric Vehicle Technology</td>
<td>MCD2E305</td>
<td>PG-CAID</td>
<td>Recommended by Course instructor Dr. Mohana Lakshmi J</td>
<td>-</td>
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<tr>
<td>Sl.no.</td>
<td>Course Title and Code</td>
<td>Course Code</td>
<td>UG/PG</td>
<td>Reason for Revision</td>
<td>Contents Revised</td>
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</tr>
<tr>
<td>1.</td>
<td>Field theory</td>
<td>EE3C01</td>
<td>UG</td>
<td>Recommended by BOS member – Dr. Ashok S &amp; Course instructors – Amrutha K N &amp; Dr. Gowrishankar S</td>
<td>Module 3 is revised by adding contents on Electric fields in material space. In module 5 topics on Wave equation included.</td>
</tr>
<tr>
<td>2.</td>
<td>Signals &amp; Systems</td>
<td>EE4C02</td>
<td>UG</td>
<td>Recommended by BOS member – Dr. Ashok S &amp; Dr. Shubanga and DAB member Dr. S Rajanna &amp; Course instructor – Dr. Omkar SP</td>
<td>Module 3 &amp; 4 is revised by adding contents on CTFS, CTFT Inverse DTFT, frequency response of LTI system. Simulation exercises added in modules 1, 2 &amp; 4</td>
</tr>
<tr>
<td>3.</td>
<td>Electric Power Generation and Transmission</td>
<td>EE4C01</td>
<td>UG</td>
<td>Input from DAB member-Mr. Sandeep N R &amp; Course instructors – Dr. Likithkumar M V and Mrs. L Vidya</td>
<td>Module 5 is revised by adding contents on Distribution systems. Module 4 contents revised by adding topics on Overhead line insulators</td>
</tr>
<tr>
<td>4.</td>
<td>Microcontrollers (With effect from 2021-25 batch onwards)</td>
<td>EE5C01</td>
<td>UG</td>
<td>Input from Faculty and Student feedback during exit meeting</td>
<td>Syllabus is completely revised by replacing 8051 Microcontroller with ARM controller.</td>
</tr>
<tr>
<td>5.</td>
<td>Industrial Control and Automation</td>
<td>EE6E105</td>
<td>UG</td>
<td>Recommended by BOS member –Dr. Shubanga Input from Faculty Dr. Mohana Lakshmi J</td>
<td>Module 2 contents updated by including topics on Industrial Control Circuits. Module 3 contents revised by adding topics on Automation</td>
</tr>
<tr>
<td>6.</td>
<td>Power System Analysis</td>
<td>EE5C03</td>
<td>UG</td>
<td>Recommended by BOS member – Dr. Ashok S</td>
<td>Simulation exercises added in module 2 &amp; module 5</td>
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<td></td>
<td>Electric Vehicles</td>
<td>EE7E301</td>
<td>UG</td>
<td>Recommended by BOS member – Dr. Ashok S</td>
<td>Topic on electric metro train technology included in module 1</td>
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<td>8.</td>
<td>Power System Protection</td>
<td>MPS1C05</td>
<td>PG-PS</td>
<td>Recommended by Course instructor Ms. Sonaxi Bhagawan Rai</td>
<td>Modules 6 revised by adding contents on Wide area measurement applications, Testing of Digital Relays</td>
</tr>
<tr>
<td>9.</td>
<td>Power System Analysis and Stability</td>
<td>MPS1C06</td>
<td>PG-PS</td>
<td>Recommended by Course instructor Dr. Jayasankar V N</td>
<td>Modules 4 revised by adding contents with Transient Stability Enhancement, simulation exercise using MATLAB is introduced.</td>
</tr>
</tbody>
</table>
| 10. | Power Electronic Converters and Applications | MPS1C04 | PG-PS | Recommended by Course instructor Dr. Chidanandappa R. Introduce the simulation exercise using MATLAB recommended by BOS member -Dr. Ashok S. | 1. Modules 2 revised by adding contents DC-DC converter for Solar PV and Multilevel inverters  
2. Introduced simulation exercise using MATLAB |
<p>| 11. | Flexible AC Transmission Systems | MPS2C06 | PG-PS | Introduce the simulation exercise using MATLAB recommended by BOS member -Dr. Ashok S. | Introduced simulation exercise using MATLAB |
| 12. | Smart Grid-Technology and Applications | MPS1E203 | PG-PS | Recommended by Course instructor Dr. H Pradeepa and BOS member – Mr. Hariram Satheesh | Newly added 3 modules on Smart Grid modelling, control and optimization, Smart Metering, Smart grid communications and networking |</p>
<table>
<thead>
<tr>
<th></th>
<th>Course Title</th>
<th>Code</th>
<th>Tracking</th>
<th>Instructor</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>13</td>
<td>Electrical Power Distribution</td>
<td>MPS2C04</td>
<td>PG-PS</td>
<td>Recommended by Course</td>
<td>Newly added module on Intelligent Systems in Distribution Automation</td>
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<td></td>
<td>Automation and Control</td>
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<td>instructor Dr. R. Chidana</td>
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<td>ndappa and Dr. Rohith K</td>
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<td>Mathew</td>
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<tr>
<td>14</td>
<td>Battery Management Systems</td>
<td>MPS1E105</td>
<td>PG-PS</td>
<td>Recommended by BOS</td>
<td>Topics on battery testing included</td>
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<td>member – Dr. Ashok S</td>
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<tr>
<td>15</td>
<td>Wireless Sensor Networks</td>
<td>MCD1E102</td>
<td>PG-CAID</td>
<td>Recommended by Course</td>
<td>Module 1 reframed by including contents on basics of wireless communication.</td>
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<td>instructor Ms. R Radha</td>
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<td>16</td>
<td>Drives Lab – I</td>
<td>MCD1L01</td>
<td>PG-CAID</td>
<td>Recommended by Course</td>
<td>Experiments have been reframed by including Generation of Control pulses for control of</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>instructor Dr. B R</td>
<td>stepper motor, boost and buck converter, Traffic light and Elevator Module</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Ananthapadmanabha</td>
<td></td>
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<tr>
<td>17</td>
<td>Computer Control of Drives</td>
<td>MCD2C02</td>
<td>PG-CAID</td>
<td>Recommended by Course</td>
<td>Module 2 revised by adding contents on Modelling of Machines. Module 3 revised by adding</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>instructor Mrs. R Radha &amp;</td>
<td>contents on Sensor-Less Control of Induction Machine</td>
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<td></td>
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<td></td>
<td></td>
<td>Dr. Mohana Lakshmi J</td>
<td>Module 4 &amp; 5 contents changed by including Control of Permanent Magnet Machine, SRM.</td>
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<td></td>
<td></td>
<td>Module 6 is reframed by adding contents on Neural networks</td>
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<tr>
<td></td>
<td>Course Title</td>
<td>Module Code</td>
<td>Lab Code</td>
<td>Lab Instructor(s)</td>
<td>Notes</td>
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<tr>
<td>18.</td>
<td>Drives Lab-II</td>
<td>MCD2L01</td>
<td>PG-CAID</td>
<td>Recommended by Course instructor Dr. B R Ananthapadmanabha</td>
<td>Experiments using traditional ARM microcontroller replaced with DSP controller</td>
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<tr>
<td>19.</td>
<td>Control Systems</td>
<td>MCD1C05</td>
<td>PG-CAID</td>
<td>Recommended by BOS member -Dr. Ashok S. &amp; Course instructor Dr. Shankar Nalinaksh</td>
<td>Simulation exercises added in Modules 2 and Module 5 using MATLAB</td>
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<tr>
<td>20.</td>
<td>Power Electronic Devices and Circuits</td>
<td>MCD1C02</td>
<td>PG-CAID</td>
<td>Recommended by BOS member -Dr. Ashok S. &amp; Course instructor Dr. B R Ananthapadmanabha</td>
<td>Simulation exercises added in Modules 3 and Module 6 using MATLAB or PSPICE or TINA-TI</td>
</tr>
<tr>
<td>21</td>
<td>Power Electronic Applications to Drives</td>
<td>MCD2C01</td>
<td>PG-CAID</td>
<td>Recommended by BOS member -Dr. Ashok S. &amp; Course instructor Dr. B R Ananthapadmanabha</td>
<td>Simulation exercises added in Modules 3, Modules 5 and Module 6 using MATLAB</td>
</tr>
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</table>