***Practical Plan***

***SE ECS Semester IV***

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| CLASS | | | | | SE ECS Semester IV | | | |
| Academic Term | | | | | Jan – May, 2021 (2020 – 21) | | | |
| Subject | | | | | **Controls and Instrumentation Laboratory** | | | |
| Term Work | | | | | 25 Marks | | | |
| Oral/Practical | | | | | 25 Marks | | | |
|  | | | Day | | Batch | | Time | |
| Time Table | | | Monday | | A | | 9.00 to 11.00 am | |
| Tuesday | | B | | 9.00 to 11.00 am | |
| Wednesday | | D | | 9.00 to 11.00 am | |
|  | | | Thursday | | C | | 9.00 to 11.00 am | |
| ***Experiments*** | | | | | | | | |
| Sr.No. | Title | | | | | Module | | |
| 1 | Transient Response Analysis | | | | | 2.1. Time Response Analysis | | |
| 2 | Time Domain Specifications | | | | | 2.1. Time Response Analysis | | |
| 3 | Type of Control Systems | | | | | 2.1. Time Response Analysis | | |
| 4 | Root Locus | | | | | 2.3. Stability Analysis | | |
| 5 | Bode Plots | | | | | 3.2. Stability Analysis | | |
| 6 | Nyquist Plots | | | | | 3.2. Stability Analysis | | |
| 7 | PID Controller | | | | | 5. Suggested experiment | | |
| 8 | Displacement Measurements | | | | | 4.2. Pressure Transducers | | |
| 9 | Temperature Measurements – Thermo couple | | | | | 4.3. Temperature Transducers | | |
| 10 | Temperature Measurements – RTD | | | | | 4.3. Temperature Transducers | | |
| ***Newly Added Experiments*** | | | | | | | | |
|  | New syllabus | | | | |  | | |
|  |  | | | | |  | | |
| ***Practical Plan*** | | | | | | | | |
| *Experiment No. 1 Time Domain Analysis* | | | | | | | | |
| *Batch* | | *Dates* | | | | | |  |
| *Planned* | | *Actual* | | | |
| A | | *22 – 02 – 2021* | |  | | | |  |
| B | | *23 – 02 – 2021* | |  | | | |  |
| D | | *24 – 02 – 2021* | |  | | | |  |
| C | | *25 – 02 – 2021* | |  | | | |  |
| *Experiment No. 2 Time domain Specifications* | | | | | | | | |
| A | | *22 – 02 – 2021* | |  | | | |  |
| B | | *23 – 02 – 2021* | |  | | | |  |
| D | | *24 – 02 – 2021* | |  | | | |  |
| C | | *25 – 02 – 2021* | |  | | | |  |
| *Experiment No. 3 Type of Control Systems* | | | | | | | | |
| A | | *15 – 03 – 2021* | |  | | | |  |
| B | | *16 – 03 – 2021* | |  | | | |  |
| D | | *17 – 03 – 2021* | |  | | | |  |
| C | | *18 – 03 – 2021* | |  | | | |  |
| *Experiment No. 4* Root Locus | | | | | | | | |
| A | | *15 – 03 – 2021* | |  | | | |  |
| B | | *16 – 03 – 2021* | |  | | | |  |
| D | | *17 – 03 – 2021* | |  | | | |  |
| C | | *18 – 03 – 2021* | |  | | | |  |
| *Experiment No. 5* Bode Plots | | | | | | | | |
| A | | *05 – 04 – 2021* | |  | | | |  |
| B | | *06 – 04 – 2021* | |  | | | |  |
| D | | *07 – 04 – 2021* | |  | | | |  |
| C | | *08 – 04 – 2021* | |  | | | |  |
| *Experiment No. 6* Nyquist Plots | | | | | | | | |
| A | | *05 – 04 – 2021* | |  | | | |  |
| B | | *06 – 04 – 2021* | |  | | | |  |
| D | | *07 – 04 – 2021* | |  | | | |  |
| C | | *08 – 04 – 2021* | |  | | | |  |
| *Experiment No. 7 PID Controller* | | | | | | | | |
| A | | *03 – 05 – 2021* | |  | | | |  |
| B | | *04 – 05 – 2021* | |  | | | |  |
| D | | *05 – 05 – 2021* | |  | | | |  |
| C | | *06 – 05 – 2021* | |  | | | |  |
| *Experiment No. 8 Displacement Transducer - LVDT* | | | | | | | | |
| A | | *03 – 05 – 2021* | |  | | | |  |
| B | | *04 – 05 – 2021* | |  | | | |  |
| D | | *05 – 05 – 2021* | |  | | | |  |
| C | | *06 – 05 – 2021* | |  | | | |  |
| *Experiment No. 9* Temperature Measurements – Thermocouple | | | | | | | | |
| A | | *10 – 05 – 2021* | |  | | | |  |
| B | | *11 – 05 – 2021* | |  | | | |  |
| D | | *12 – 05 – 2021* | |  | | | |  |
| C | | *13 – 05 – 2021* | |  | | | |  |
| *Experiment No. 10* Temperature Measurements - RTD | | | | | | | | |
| A | | *10 – 05 – 2021* | |  | | | |  |
| B | | *11 – 05 – 2021* | |  | | | |  |
| D | | *12 – 05 – 2021* | |  | | | |  |
| C | | *13 – 05 – 2021* | |  | | | |  |

**Term Work :-**

At least 10 experiments covering entire syllabus of Controls and Instrumentation (ECC 403) should be set to have well predefined inference and conclusion. The experiments should be student centric and attempt should be made to make experiments more meaningful, interesting. Additionally, an industrial visit to any relevant industry is compulsory. Experiments must be graded from time to time. The grades should be converted into marks as per the Credit and Grading System manual and should be added and averaged. The grading and term work assessment should be done based on this scheme. The final certification and acceptance of term work ensures satisfactory performance of laboratory work and minimum passing marks in term work. Practical and Oral exam will be based on the entire syllabus. The Term work assessment can be carried out based on the different tools and the rubrics decided by the concerned faculty members and need to be conveyed to the students well in advanced.

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| **Submitted By** | **Approved By** |
|  |  |
| Prof. Narayanan Kallingal | i) Prof. Narayanan Kallingal Sign: |
|  |  |
| Sign: | ii) Dr. D V Bhoir Sign: |
|  |  |
|  | iii) Prof. Shilpa Patil Sign: |
|  | iv) Prof. Monica Khanore Sign: |
|  |  |
| **Date of Submission: 22 – 02 – 2021** | **Date of Approval:** |
|  | |
| **Remarks by PAC (if any)** | |
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