# DEPARTMENT OF CHEMICAL ENGINEERING
# NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

| COURSE PLAN – PART I | | | |
|---|---|---|---|
| **Course Title** | | | |
| **Course Code** | **CLLR17** | **No. of Credits** | **2** |
| **Course Code of Pre-requisite subject(s)** | **CLPC25** | | |
| **Session** | **July, 2019** | **Section (if, applicable)** | **A / B** |
| **Name of Faculty** | **Dr. T.K. Radhakrishnan Dr.N.Samsudeen** | **Department** | **Chemical Engineering** |
| **Email** | radha@nitt.edu / samsudeen@nitt.edu | **Telephone No.** | **04312503104 / 04312503119** |
| **Name of Course Coordinator(s) (if, applicable)** | **Dr. Meera Sheriffa Begum** | | |
| **E-mail** | meera@nitt.edu | **Telephone No.** | **0431-2503109** |
| **Course Type** | √ **Core course** | ☐ **Elective course** | |

**List of Experiments (approved in BoS)**

1. I & II Order System Dynamics
2. Interacting & non interacting Systems
3. Flapper - Nozzle system and I/P and P/I
4. Control valve characteristics
5. Pressure control Trainer
6. Flow control system
7. Temperature control system
8. Level Control System
9. PID control Design experiment using MATLAB

**REFERENCE BOOKS**

1. Process Control Laboratory Manual
2. D.R. Coughanowr and S. E. LeBlanc, 'Process Systems Analysis and Control', Mc.Graw Hill, III Edition, 2009.

**COURSE OBJECTIVES**

To impart hands on experience on various process control systems and instrumentation

**COURSE OUTCOMES (CO)**

| **Course Outcomes** | **Aligned Programme Outcomes (PO)** |
|---|---|
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| | |
|---|---|
| 1. Able to apply the theoretical knowledge while performing experiments for different chemical engineering processes | **PO1, PO3, PO4,PO5, PO8, PO9, PO10, PO11, PO12** |

## COURSE PLAN – PART II

**COURSE OVERVIEW**

**COURSE TEACHING AND LEARNING ACTIVITIES**

| S.No. | Week /Contact Hours | Topic | Mode of Delivery |
|---|---|---|---|
| 1. | 1st week | Introduction about Process Dynamic Control Laboratory | Chalk and Talk |
| 2. | 2nd week | I & II Order System Dynamics | Experiment will be carried out by students |
| 3. | 3rd week | Interacting & non interacting Systems | Experiment will be carried out by students |
| 4. | 4th week | Flapper - Nozzle system and I/P and P/I | Experiment will be carried out by students |
| 5. | 5th week | Control valve characteristics | Experiment will be carried out by students |
| 6. | 6th week | PID Control | Experiment will be carried out by students |
| 7. | 7th week | Pressure Control Trainer | Experiment will be carried out by students |
| 8. | 8th week | Flow control System | Experiment will be carried out by students |
| 9. | 9th week | Temperature Control System | Experiment will be carried out by students |
| 10. | 10th week | PID controller Design experiment using MATLAB | Experiment will be carried out by students |

**COURSE ASSESSMENT METHODS (shall range from 4 to 6)**

| S.No. | Mode of Assessment | Week/Date | Duration | % Weightage |
|---|---|---|---|---|
| 1 | Internal Assessment | Every week during lab hours | During lab hours | 50 |
| 2 | Practical Lab examination | After 10th week | 1 hours test | 30 |
| 3 | Viva voce examination | After Practical examination | 3 hours | 20 |

***mandatory; refer to guidelines on page 4**

**COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)**

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Feedback from students at the end of the each assessment

**COURSE POLICY (preferred mode of correspondence with students, policy on attendance, compensation assessment, , academic honesty and plagiarism etc.)**

**MODE OF CORRESPONDENCE (email/ phone etc)**, Students may be contacted to my mail id (radha@nitt.edu ) for queries related to PDC Lab.

**ATTENDANCE**

- At least 75% attendance in each course is mandatory.
- A maximum of 10% shall be allowed under On Duty (OD) category.
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

**COMPENSATION ASSESSMENT**

No compensation assessment will be given.

**ACADEMIC HONESTY & PLAGIARISM**

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.

The above policy against academic dishonesty shall be applicable for all the programmes.

**ADDITIONAL INFORMATION**

Apart from the books mentioned in the syllabus, students may follow any other relevant books for the viva voce examination

**FOR APPROVAL**

**Dr.T. K. Radhakrishnan**

**Dr. N. Samsudeen**
**Course Faculty**

**CC-Chairperson** _____ **HOD** _____ 9/8/2019