GPCET
Pioneering Innovative Education

G.Pullaiah College of Engineering and Technology

(Autonomous)
(Approved by AICTE, New Delhi | NAAC Accreditation with 'A' Grade |
Accredited by NBA (CSE, ECE & EEE) | Affiliated to JNTUA)
Nandikotkur Road, Venkayapalli (V), Kurnool - 518452, Andhra Pradesh

DATE: 25-07-2020

To

The Principal,
GPCET,
Kurnool.

Sir,

Sub: Approval of ADD-ON course for II ME, III ME & IV ME Students-Regd

The department of ME requests you to accept the proposal for conducting ADD-ON Course on "**Automatic Control**" for the odd semester of II, III & IV year ME students scheduled for the duration of 42 hours. Kindly accept the proposal.

Thanking you sir,

Yours Sincerely

HOD-ME

PRINCIPAL
G.Pullaiah College of Engg & Tech.
Nandikotkur Road, VENKAYAPALLI
KURNOOL-518 452 (A.P)

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Department Circular –ADD-ON Course

DATE: 26-07-2020

The IIyear, III year & IV year-I semester ME Students are informed to enroll their names for ADD-ON Course on "**Automatic Control**" with their respective class-in-charges on or before 30-07-2020. The course commences from 31st July and the duration of the course is for 42 hours. The course is conducted from 4 pm to 5 pm regularly.

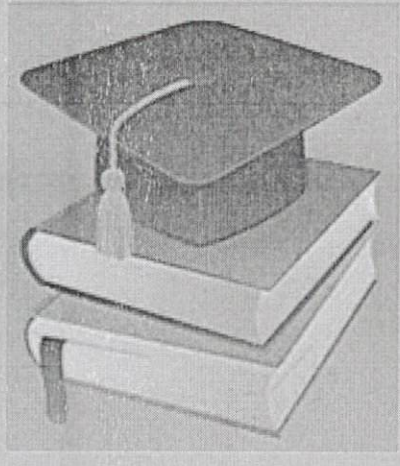
Bus facility is made available soon after the class work.

HOD-ME

G. PULLAIAH COLLEGE OF ENGINEERING AND TECHNOLOGY

(AUTONOMOUS)

Department Of Mechanical Engineering



ADD ON COURSE

Topic : Automatic Control

Target audience : II and III Year Students

Total Course Duration : 42 hrs

Selection Procedure : Registration on First come First serve basis

FREE Register Now

Date of commencement of the course : 31 August , 2020.

End of Course : 3 Feb, 2021.

Exam Date: 05 Feb,2021.

SYLLABUS FOR ADD-ON COURSE ON AUTOMATIC CONTROL

DAY	TOPICS
1	Automatic Control System
2	Mathematical Modelling.
3	Transient Response Analysis.
4	Stability and Steady State Error
5	Root Locus Technique.
6	Design via Root Locus and Compensation Techniques.
7	State Space Method.
8	Application of MATLAB in Automatic Control.
9	design and modelling of a control system
10	theory of transfer functions
11	poles, zeros, block diagram algebra
12	transient response analysis of first and second order systems
13	stability and Routh's criteria
14	Error analysis, PID control, root locus techniques

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G PULLAIAH COLLEGE OF ENGINEERING & TECHNOLOGY: KURNOOL (Autonomous)

Department of Mechanical Engineering

The following is the list of the students who have registered Add on Course on "Automatic Control"

17th Batch Students

S.No	ROLL NO	Name of the Candidate
1	17AT1A0301	SYED AALE RASOOL
2	17AT1A0302	SHAIK AFZAL AHMMED
3	17AT1A0303	KATIKA ALLAH BAKASH
4	17AT1A0304	PAGADAM ANANDA SWAROOP KUMAR
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13	17AT1A0314	PUJARI KRISHNALOKA
14	17AT1A0315	MACHA MAHESH
15	17AT1A0316	S MD NAVEED
16	17AT1A0317	PINJARI MAHAMMED RAFI
17	17AT1A0318	SHAIK MOHAMED SAIF
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31	17AT1A0332	BUDARAPU RAGHAVENDRA
32	17AT1A0333	SHAIK RAHAMAN
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62	18AT5A0313	MADARA BOYINA SAI KRISHNA
63	18AT5A0314	BOYA SAI KUMAR

G PULLAIAH COLLEGE OF ENGINEERING & TECHNOLOG
DEPARTMENT OF MECHANICAL ENGINEEERING
ADDON COURSE SCHEDULE

Date: 31/07/2020

IV YEAR – I Semester		
Course	**Faculty**	**Duration**
Automatic Control System	Mr. A. SRIKANTH	2 hours
Mathematical Modelling.	Mr. A. SRIKANTH	2 hours
Transient Response Analysis.	Mr. A. SRIKANTH	2 hours
Stability and Steady State Error	Mr. A. SRIKANTH	2 hours
Root Locus Technique.	Mr. A. SRIKANTH	2 hours
Design via Root Locus and Compensation Techniques.	Mr. A. SRIKANTH	2 hours
State Space Method.	Mr. A. SRIKANTH	2 hours
Application of MATLAB in Automatic Control.	Mr. A. SRIKANTH	2 hours
design and modelling of a control system	Mr. A. SRIKANTH	2 hours
theory of transfer functions	Mr. A. SRIKANTH	2 hours
poles, zeros, block diagram algebra	Mr. A. SRIKANTH	2 hours
transient response analysis of first and second order systems	Mr. A. SRIKANTH	2 hours
stability and Routh's criteria	Mr. A. SRIKANTH	2 hours
error analysis, PID control, root locus techniques	Mr. A. SRIKANTH	2 hours

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G. PULLAIAH COLLEGE OF ENGINEERING & TECHNOLOGY (AUTONOMOUS)

II, III & IV B. Tech I SEM Objective Paper – Assessment

Branch: MECHANICAL ENGINEERING

Sub: Automatic Control **Date: 05/02/2021**

Time: 30 min **Max.Marks:25**

Roll No: **Invigilator signature:**

I.MULTIPLE CHOICE QUESTIONS

1. What is the primary objective of automatic control systems? [ ]

a) To increase manual intervention b) To maintain system performance within desired limits c) To eliminate feedback mechanisms d) To decrease system complexity

2. Which of the following is NOT a type of control system? [ ]

a) Open-loop control b) Closed-loop control c) Feedforward control d) Steady-state control

3. What is the purpose of a controller in an automatic control system? [ ]

a) To measure system outputs b) To compare system outputs with desired setpoints c) To apply corrective actions to the system d) All of the above

4. Which type of system does not use feedback from the output to adjust the input? [ ]

a) Open-loop control system b) Closed-loop control system c) Proportional control system d) Integral control system

5. What does PID stand for in the context of control systems? [ ]

a) Proportional-Integral-Derivative b) Power-Increase-Decrease c) Precision-Input-Data d) Process-Improvement-Decision

6. Which component of a PID controller reacts to the current error signal? [ ]

a) Proportional (P) term b) Integral (I) term c) Derivative (D) term d) Setpoint

7. What is the primary function of the proportional (P) term in a PID controller? [ ]

a) To eliminate steady-state error b) To respond to changes in the error signal over time c) To provide quick corrections to large errors d) To prevent oscillations around the setpoint

8. The integral (I) term in a PID controller is responsible for: [ ]

a) Providing quick corrections to large errors b) Eliminating steady-state error c) Reacting to changes in the error signal over time d) Preventing oscillations around the setpoint

9. Which of the following is NOT a derivative (D) term in a PID controller? [ ]

a) It responds to changes in the error signal over time b) It provides quick corrections to large errors c) It helps dampen oscillations around the setpoint d) It can lead to instability if not properly tuned

10. Which of the following statements is true about feedforward control? [ ]

a) It relies on feedback from the output to adjust the input b) It predicts disturbances and adjusts the input accordingly c) It is less efficient than open-loop control d) It is not suitable for systems with uncertainties

11. What is the primary purpose of cascade control in automatic control systems? [ ]

a) To increase system complexity b) To improve system response time c) To reduce the effects of disturbances on the system d) To eliminate the need for feedback control

12. Which of the following statements is true about predictive control? [ ]

a) It relies solely on feedback from the output b) It predicts future system behavior and adjusts the input accordingly c) It is less effective than open-loop control d) It cannot handle uncertainties in the system

13. What is the advantage of state-space control over classical control methods? [ ]

a) State-space control is easier to implement b) State-space control provides better performance in nonlinear systems c) State-space control does not require feedback d) State-space control is less susceptible to disturbances

14. Which of the following is NOT an application of automatic control systems? [ ]

a) Aircraft autopilot systems b) Temperature regulation in industrial processes c) Traffic light control systems d) Manual steering in automobiles

15. Which of the following statements is true about adaptive control systems? [ ]

a) They require constant tuning and adjustment b) They are only suitable for linear systems c) They do not rely on feedback from the output d) They are less flexible than traditional control systems

16. What is the main purpose of a state observer in a control system? [ ]

a) To measure system outputs b) To estimate the internal states of the system c) To compare system outputs with desired setpoints d) To apply corrective actions to the system

17. Which of the following is NOT a common feature of modern control systems? [ ]

a) Real-time monitoring and diagnostics b) Wireless communication capabilities c) Analog control signals d) Remote access and control

18. Which of the following is NOT a factor to consider designing a control system? [ ]

a) System stability b) System complexity c) System reliability d) System cost

19. What is the primary function of a transfer function in control system analysis? [ ]

a) To model the behavior of the system b) To determine the stability of the system c) To calculate the error signal d) To apply corrective actions to the system

20. Which of the following statements is true about the Nyquist stability criterion? [ ]

a) It predicts the stability of a system based on its transfer function b) It is only applicable to linear time-invariant systems c) It cannot be used to analyze closed-loop control systems d) It relies solely on the magnitude plot of the transfer function

21. What is the primary purpose of robust control techniques? [ ]

a) To improve system performance b) To ensure system stability in the presence of uncertainties c) To reduce system complexity d) To eliminate the need for feedback control

22. Which of the following is NOT a limitation of PID controllers? [ ]

a) They may not perform well in nonlinear systems b) They require accurate mathematical models of the system c) They can lead to instability if not properly tuned d) They are not suitable for systems with time delays

23. What is the primary purpose of model predictive control (MPC)? [ ]

a) To eliminate the need for feedback control b) To improve system response time c) To predict future system behavior and adjust the input accordingly d) To reduce system complexity

24. Which of the following is NOT a common type of control system architecture? [ ]

a) Centralized control b) Decentralized control c) Hierarchical control d) Parallel control

25. What is the main advantage of distributed control systems (DCS) over centralized control systems? [ ]

a) Reduced system complexity b) Improved system response time c) Enhanced scalability and flexibility d) Lower cost of implementation

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Department of Mechanical Engineering

Evaluation sheet on Add- on Course on "Automatic Control"

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