

توصيف مقرر دراسي

قسم:		كلية:	
CECC602	رمز المقرر:	الدارات الإلكترونية 2	
CECC508	المتطلب السابق:	نظري: ساعتان	عملي: ساعتان
التوصيف			
<p>الهدف الرئيسي من هذا المقرر هو اكتساب الخبرة في تقييم الدارات الإلكترونية ومتابعة متقدمة لتصميم الدارات المتكاملة الرقمية والتشاهبية (التمائلية) ويغطي: التغذية العكسية الموجبة والسالبة، المهتزات، المضخات التوليفية، المضخات ذات الحزمة العريضة، الضجيج والتشويه في المضخات، تحليل المرشحات الفعالة وتصميمها، تقانة الدارات المتكاملة.</p>			
المحتوى			
<p>UNIT I FEEDBACK AMPLIFIERS General Feedback Structure – Properties of negative feedback – Basic Feedback Topologies – Feedback amplifiers – Series – Shunt, Series – Series, Shunt – Shunt and Shunt – Series Feedback – Determining the Loop Gain – Stability Problem – Nyquist Plot – Effect of feedback on amplifier poles – Frequency Compensation.</p> <p>UNIT II OSCILLATORS Classification, Barkhausen Criterion - Mechanism for start of oscillation and stabilization of amplitude, General form of an Oscillator, Analysis of LC oscillators - Hartley, Colpitts, Clapp, Franklin, Armstrong, Tuned collector oscillators, RC oscillators - phase shift – Wienbridge - Twin-T Oscillators, Frequency range of RC and LC Oscillators, Quartz Crystal Construction, Electrical equivalent circuit of Crystal, Miller and Pierce Crystal oscillators, frequency stability of oscillators.</p> <p>UNIT III TUNED AMPLIFIERS Coil losses, unloaded and loaded Q of tank circuits, small signal tuned amplifiers - Analysis of capacitor coupled single tuned amplifier – double tuned amplifier - effect of cascading single tuned and double tuned amplifiers on bandwidth – Stagger tuned amplifiers – large signal tuned amplifiers – Class C tuned amplifier – Efficiency and applications of Class C tuned amplifier - Stability of tuned amplifiers – Neutralization - Hazeltine neutralization method.</p> <p>UNIT IV WAVE SHAPING AND MULTIVIBRATOR CIRCUITS RC & RL Integrator and Differentiator circuits – Storage, Delay and Calculation of Transistor Switching Times – Speed-up Capaitor - Diode clippers, Diode comparator - Clampers. Collector coupled and Emitter coupled Astable multivibrator – Monostable multivibrator – Bistable multivibrators – Triggering methods for Bigtable multivibrators - Schmitt trigger circuit</p> <p>UNIT V BLOCKING OSCILLATORS AND TIMEBASE GENERATORS UJT saw tooth waveform generator, Pulse transformers – equivalent circuit – response -applications, Blocking Oscillator – Free running blocking oscillator - Astable Blocking Oscillators with base timing – Push-pull Astable blocking oscillator with emitter timing, Frequency control using core saturation, Triggered blocking oscillator – Monostable blocking oscillator with base timing</p>			

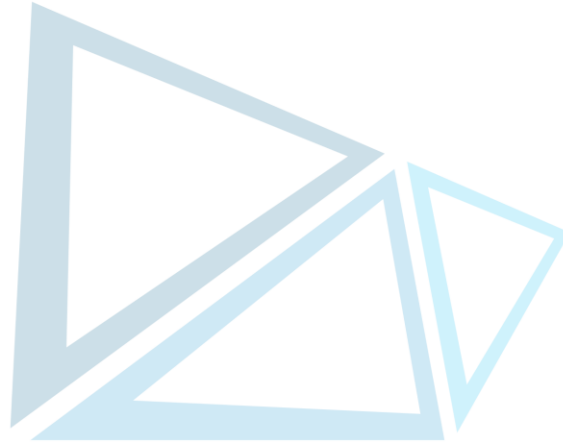
– Monostable blockingoscillator with emitter timing, Time base circuits - Voltage-Time base circuit, Current-Time base circuit
–Linearization through adjustment of driving waveform.

المراجع

1. Sedra and Smith, "Micro Electronic Circuits"; 7 Edition, Oxford University Press, 2011.
2. 1. Robert L. Boylestad and Louis Nasheresky, "Electronic Devices and Circuit Theory", 10th Edition, Pearson Education / PHI, 2008
3. 2. David A. Bell, "Electronic Devices and Circuits", Fifth Edition, Oxford University Press, 2008.
5. 3. Millman J. and Taub H., "Pulse Digital and Switching Waveforms", TMH, 2000.
6. 4. Millman and Halkias. C., Integrated Electronics, TMH, 2007.

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