

Index

A

Asymptotically Stable *p.7*

B

Bendixson's Theorem *pp.25 – 29*
Bifurcation *pp.12 – 13*
Bifurcation (Fold) *pp.12 – 13, 57*
Bifurcation (Transcritical) *pp.12 – 15*
Bifurcation Diagram *pp.12, 15 – 17*

C

Carrying Capacity *p.9*
Center Manifold Theory *pp.39 – 45*
Centers (Equilibrium Point) *pp.22, 26*
Characteristic Equation *p.34*
Continuity w.r.t. Initial Conditions *pp.53 – 55*
Continuity w.r.t. Parameters *pp.54 – 55*
Continuously Differentiable *pp.48 – 52*
Coordinate Transformation Matrix *pp.18, 20 – 41*

D

Differentiable *pp.51 – 52*
Divergence *pp.25 – 29*

E

Equilibrium Point *pp.3 – 4*
Existence And Uniqueness Theorem *pp.46 – 52*

F

Finite Escape Time *pp.9 – 10*
Focus Node *pp.22, 33*
Fold Bifurcation *pp.12 – 13, 57*

G

Green's Theorem *pp.25 – 27*

H

Hartman Grobman Theorem *pp.23 – 24*
Homeomorphic *p.23*
Hopf Bifurcation *pp.35 – 38*
Hyperbolic Equilibrium Point *pp.22 – 24*

I

Index Theory *p.35*
Invariant Manifold *pp.42 – 45*

J

Jacobian *pp.56 – 58*

L

Limit Cycle *pp.10 – 12, 33 – 38*
Linearization at a Fixed Point *pp.5 – 8, 23 – 24*
Lipschitz Continuous Function *pp.49 – 55*
Logistic Equation *p.9*
Lorenz Attractor *p.12*

<i>M</i>		
	Manifolds, C^k Differentiable	<i>pp.</i> 48 – 52
	Metzler Matrix	<i>p.</i> 31
<i>N</i>		
	Node	<i>pp.</i> 21, 33
<i>P</i>		
	Pendulum	<i>pp.</i> 7 – 8
	Periodic Orbits	<i>pp.</i> 25 – 34
	Phase Portrait	<i>pp.</i> 5, 17 – 19
	Pitchfork Bifurcation	<i>pp.</i> 12, 15 – 17
	Poincare Bendixson Criterion	<i>pp.</i> 32 – 34
	Positive Invariant Set	<i>pp.</i> 21, 29 – 34
	Positive System	<i>p.</i> 31
	Predator/prey Model	<i>pp.</i> 30 – 31
<i>R</i>		
	Region of Attraction	<i>p.</i> 15
	Routh Hurwitz Criterion	<i>p.</i> 34
<i>S</i>		
	Saddle Node	<i>pp.</i> 19 – 21
	Sensitivity Function	<i>pp.</i> 55 – 58
	Sink Node	<i>pp.</i> 19, 21
	Source Node	<i>pp.</i> 19, 21
	Stability	<i>p.</i> 5
	Stable	<i>p.</i> 5
	Subcritical Hopf Bifurcation	<i>pp.</i> 37 – 38
	Subcritical Pitchfork Bifurcation	<i>p.</i> 17
	Supercritical Hopf Bifurcation	<i>pp.</i> 35 – 37
	Supercritical Pitchfork Bifurcation	<i>pp.</i> 15 – 16
<i>T</i>		
	Taylor Series Expansion	<i>pp.</i> 6, 39 – 40, 44 – 45
	Transcritical Bifurcation	<i>pp.</i> 12 – 15
<i>V</i>		
	Van Der Pol Oscillator	<i>pp.</i> 11 – 12