Modules in Mechanics of Materials
List of Symbols

A	area, free energy, Madelung constant
$\mathbf{A}$	transformation matrix
$\mathcal{A}$	plate extensional stiffness
a	length, transformation matrix, crack length
a_T	time-temperature shifting factor
B	design allowable for strength
$\mathbf{B}$	matrix of derivatives of interpolation functions
$\mathcal{B}$	plate coupling stiffness
b	width, thickness
C	stress optical coefficient, compliance
$\mathcal{C}$	viscoelastic compliance operator
c	numerical constant, length, speed of light
C.V.	coefficient of variation
$\mathbf{D}$	stiffness matrix, flexural rigidity of plate
$\mathcal{D}$	plate bending stiffness
d	diameter, distance, grain size
E	modulus of elasticity, electric field
E^*	activation energy
$\mathcal{E}$	viscoelastic stiffness operator
e	electronic charge
e_{ij}	deviatoric strain
F	force
f_s	form factor for shear
G	shear modulus
$\mathcal{G}$	viscoelastic shear stiffness operator
$\mathcal{G}_c$	critical strain energy release rate
g	acceleration of gravity
GF	gage factor for strain gages
H	Brinell hardness
h	depth of beam
I	moment of inertia, stress invariant
$\mathbf{I}$	identity matrix
J	polar moment of inertia
K	bulk modulus, global stiffness matrix, stress intensity factor
$\mathcal{K}$	viscoelastic bulk stiffness operator
k	spring stiffness, element stiffness, shear yield stress, Boltzman's constant
L	length, beam span
$\mathbf{L}$	matrix of differential operators

M	bending moment
N	crosslink or segment density, moire fringe number, interpolation function, cycles to failure
$\mathbf{N}$	traction per unit width on plate
N_A	Avogadro's number
$\mathcal{N}$	viscoelastic Poisson operator
n	refractive index, number of fatigue cycles
$\hat{\mathbf{n}}$	unit normal vector
P	concentrated force
P_f	fracture load, probability of failure
P_s	probability of survival
p	pressure, moire gridline spacing
Q	force resultant, first moment of area
q	distributed load
R	radius, reaction force, strain or stress rate, gas constant, electrical resistance
$\mathbf{R}$	Reuter's matrix
r	radius, area reduction ratio
S	entropy, moire fringe spacing, total surface energy, alternating stress
$\mathbf{S}$	compliance matrix
s	Laplace variable, standard deviation
SCF	stress concentration factor
T	temperature, tensile force, stress vector, torque
T_g	glass transition temperature
t	time, thickness
t_f	time to failure
U	strain energy
U^*	strain energy per unit volume
UTS	ultimate tensile stress
$\tilde{u}$	approximate displacement function
V	shearing force, volume, voltage
V^*	activation volume
v	velocity
W	weight, work
u, v, w	components of displacement
x, y, z	rectangular coordinates
X	standard normal variable
α, β	curvilinear coordinates
α_L	coefficient of linear thermal expansion
γ	shear strain, surface energy per unit area, weight density
δ	deflection
δ_{ij}	Kroenecker delta
ϵ	normal strain
$\boldsymbol{\epsilon}$	strain pseudovector
ϵ_{ij}	strain tensor
ϵ_T	thermal strain
η	viscosity
θ	angle, angle of twist per unit length
$\boldsymbol{\kappa}$	curvature
λ	extension ratio, wavelength

ν	Poisson's ratio
ρ	density, electrical resistivity
Σ_{ij}	distortional stress
σ	normal stress
$\boldsymbol{\sigma}$	stress pseudovector
σ_{ij}	stress tensor
σ_e	endurance limit
σ_f	failure stress
σ_m	mean stress
σ_M	Mises stress
σ_t	true stresss
σ_Y	yield stresss
τ	shear stress, relaxation time
ϕ	Airy stress function
ξ	dummy length or time variable
Ω	configurational probability
ω	angular frequency
∇	gradient operator

3.11 Mechanics of Materials
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