### Cluster E

72 topics < 103 hours >
prerequisites in other clusters linked
to topic here: 41
successors in other cluster linked to
topic here: 40

<table>
<thead>
<tr>
<th>Prerequisite Topic</th>
<th>⇒</th>
<th>Successor Topic</th>
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<tbody>
<tr>
<td>acids &amp; bases</td>
<td>&lt; 1.0 hr&gt;</td>
<td>buffer solutions &amp; titrations</td>
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<tr>
<td>acids &amp; bases</td>
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<td>corrosion</td>
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<td>acids &amp; bases</td>
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<td>proteins</td>
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<tr>
<td>atomic nature of matter</td>
<td>&lt; 1.0 hr&gt;</td>
<td>2d equilibrium of particles</td>
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<td>atomic nature of matter</td>
<td>&lt; 1.0 hr&gt;</td>
<td>3d equilibrium of particles</td>
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<td>acids &amp; bases</td>
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<td>bonding</td>
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<td>atomic nature of matter</td>
<td>&lt; 1.0 hr&gt;</td>
<td>compounds, most common chemical</td>
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<td>fusion &amp; fission</td>
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<td>inorganic chemistry</td>
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<td>molecular geometry</td>
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<td>nanotechnology</td>
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<td>2d equilibrium of particles</td>
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<tr>
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<td>3d equilibrium of particles</td>
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<td>compounds, most common chemical</td>
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<td>hybridization</td>
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<td>molecular geometry</td>
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<td>nanotechnology</td>
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<td>bonding</td>
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<td>proteins</td>
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<tr>
<td>compounds, most common chemical</td>
<td>&lt; 1.0 hr&gt;</td>
<td>inorganic chemistry</td>
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<tr>
<td>deformation in solids</td>
<td>&lt; 2.0 hr&gt;</td>
<td>creep</td>
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deformation in solids  < 2.0 hr > ⇒  experimental stress analysis  < 0.5 hr >
deformation in solids  < 2.0 hr > ⇒  forging  < 0.25 hr >
deformation mechanisms  < 2.0 hr > ⇒  strength & plasticity  < 2.0 hr >
displacement (measurement of)  < 1.0 hr > ⇒  2d equilibrium of rigid bodies  < 1.0 hr >
displacement (measurement of)  < 1.0 hr > ⇒  3d equilibrium of rigid bodies  < 2.0 hr >
displacement (measurement of)  < 1.0 hr > ⇒  rigid bodies  < 3.0 hr >
displacement (measurement of)  < 1.0 hr > ⇒  springs, mechanical  < 1.0 hr >
equations of motion  < 2.0 hr > ⇒  kinematics & dynamics of machines  < 3.0 hr >
equations of motion  < 2.0 hr > ⇒  parabolic motion  < 1.0 hr >
equations of motion  < 2.0 hr > ⇒  rectilinear kinematics  < 1.0 hr >
equations of motion  < 2.0 hr > ⇒  relative motion  < 1.0 hr >
equations of motion  < 2.0 hr > ⇒  translational motion  < 2.0 hr >
forces & torques  < 1.0 hr > ⇒  2d equilibrium of particles  < 1.0 hr >
forces & torques  < 1.0 hr > ⇒  3d equilibrium of particles  < 2.0 hr >
forces & torques  < 1.0 hr > ⇒  rectilinear kinematics  < 1.0 hr >
forces & torques  < 1.0 hr > ⇒  rigid bodies  < 3.0 hr >
forces & torques  < 1.0 hr > ⇒  vector description of forces  < 1.0 hr >
hooke’s law  < 1.0 hr > ⇒  one dimensional stress & strain  < 2.0 hr >
hooke’s law  < 1.0 hr > ⇒  saint venant’s principle  < 1.0 hr >
linear momentum equation for control volumes  < 1.0 hr > ⇒  linear momentum in integral form  < 0.5 hr >
material forming  < 2.0 hr > ⇒  material removal processes  < 3.0 hr >
material processing  < 4.0 hr > ⇒  material forming  < 2.0 hr >
material processing  < 4.0 hr > ⇒  welding  < 0.25 hr >
mohr’s circle  < 2.0 hr > ⇒  force deformation  < 1.0 hr >
mohr’s circle  < 2.0 hr > ⇒  stress transformation  < 1.0 hr >
relative motion  < 1.0 hr > ⇒  rectilinear kinematics  < 1.0 hr >
rigid bodies  < 3.0 hr > ⇒  rigid body system control  < 2.0 hr >
rotational motion  < 3.0 hr > ⇒  angular velocity  < 1.0 hr >
rotational motion  < 3.0 hr > ⇒  kinematics & dynamics of machines  < 3.0 hr >
rotational motion < 3.0 hr \Rightarrow rectilinear kinematics < 1.0 hr
springs, mechanical < 1.0 hr \Rightarrow hooke’s law < 1.0 hr
springs, mechanical < 1.0 hr \Rightarrow relaxation < 1.0 hr
statics: fundamental principles < 5.0 hr \Rightarrow 2d equilibrium of rigid bodies < 1.0 hr
statics: fundamental principles < 5.0 hr \Rightarrow 3d equilibrium of rigid bodies < 2.0 hr
statics: fundamental principles < 5.0 hr \Rightarrow cylinders under pressure < 1.0 hr
statics: fundamental principles < 5.0 hr \Rightarrow linear momentum equation for control volumes < 1.0 hr
statics: fundamental principles < 5.0 hr \Rightarrow resolution of forces < 1.0 hr
statics: fundamental principles < 5.0 hr \Rightarrow rigid bodies < 3.0 hr
statics: fundamental principles < 5.0 hr \Rightarrow statically determinate & indeterminate situations < 1.0 hr
statics: fundamental principles < 5.0 hr \Rightarrow vector description of moments < 1.0 hr
strain (measurement of) < 1.0 hr \Rightarrow creep < 1.0 hr
strain (measurement of) < 1.0 hr \Rightarrow cylinders under pressure < 1.0 hr
strain (measurement of) < 1.0 hr \Rightarrow force deformation < 1.0 hr
strain (measurement of) < 1.0 hr \Rightarrow strains under axial forces < 1.0 hr
constitutive relations to determine forces/moments/displacements/rotations < 2.0 hr
stress & strain of deformable bodies < 2.0 hr \Rightarrow creep < 1.0 hr
stress & strain of deformable bodies < 2.0 hr \Rightarrow deformation in solids < 2.0 hr
stress & strain of deformable bodies < 2.0 hr \Rightarrow displacements for solid beams < 1.0 hr
stress & strain of deformable bodies < 2.0 hr \Rightarrow experimental stress analysis < 0.5 hr
stress & strain of deformable bodies < 2.0 hr \Rightarrow force deformation < 1.0 hr
stress & strain of deformable bodies < 2.0 hr \Rightarrow fracture < 2.0 hr
stress & strain of deformable bodies < 2.0 hr \Rightarrow high temperature deformation < 1.0 hr
stress & strain of deformable bodies < 2.0 hr \Rightarrow material processing < 4.0 hr
stress & strain of deformable bodies < 2.0 hr \Rightarrow material removal processes < 3.0 hr
stress & strain of deformable bodies < 2.0 hr > ⇒ mohr’s circle < 2.0 hr >
stress & strain of deformable bodies < 2.0 hr > ⇒ relaxation < 1.0 hr >
stress & strain of deformable bodies < 2.0 hr > ⇒ saint venant’s principle < 1.0 hr >
stress & strain of deformable bodies < 2.0 hr > ⇒ simple deformable mass systems < 1.0 hr >
stress & strain of deformable bodies < 2.0 hr > ⇒ strain (measurement of) < 1.0 hr >
stress & strain of deformable bodies < 2.0 hr > ⇒ strength & plasticity < 2.0 hr >
stress & strain of deformable bodies < 2.0 hr > ⇒ stress analysis & failure theories < 2.0 hr >
stress & strain of deformable bodies < 2.0 hr > ⇒ stress intensity < 1.0 hr >
stress & strain of deformable bodies < 2.0 hr > ⇒ uniaxial loading of materials < 2.0 hr >
stress & strain of deformable bodies < 2.0 hr > ⇒ uniaxial tension < 1.0 hr >
stress & strain of deformable bodies < 2.0 hr > ⇒ welding < 0.25 hr >
stress in solids < 2.0 hr > ⇒ combined stresses < 1.0 hr >
stress in solids < 2.0 hr > ⇒ cylinders under pressure < 1.0 hr >
stress in solids < 2.0 hr > ⇒ strains under axial forces < 1.0 hr >
stress in solids < 2.0 hr > ⇒ stress & strain of deformable bodies < 2.0 hr >
tension & compression < 1.0 hr > ⇒ cylinders under pressure < 1.0 hr >
tension & compression < 1.0 hr > ⇒ mohr’s circle < 2.0 hr >
tension & compression < 1.0 hr > ⇒ tension in engineering materials < 2.0 hr >
vector analysis < 1.0 hr > ⇒ 2d equilibrium of rigid bodies < 1.0 hr >
vector analysis < 1.0 hr > ⇒ 3d equilibrium of rigid bodies < 2.0 hr >
vector analysis < 1.0 hr > ⇒ displacement (measurement of) < 1.0 hr >
vector analysis < 1.0 hr > ⇒ stress transformation < 1.0 hr >
vector analysis < 1.0 hr > ⇒ vector description of forces < 1.0 hr >
vector analysis < 1.0 hr > ⇒ vector operations < 1.0 hr >
vector description of forces < 1.0 hr > ⇒ vector description of moments < 1.0 hr >
vector operations  < 1.0 hr>  ⇒  resolution of forces  < 1.0 hr>
welding  < 0.25 hr>  ⇒  forging  < 0.25 hr>