

PHENOMENA / TOOLKIT		ESPSS	THRUST	ECLSS	TURBO	ASYST	CRYOLIB	FLUIDAPRO	H2ENERGY	HVAC	TRITIUM	PIPELIQ	PIPELIQTRAN	THERMAL BALANCE
38	Combustors and preburners	X	X		X			X	X	X				X
39	1D combustion model	X	X					X	X	X				
40	Emission calculation	X	X		X			X	X					
41	Equilibrium combustion model	X	X					X	X					
42	Finite rate combustion model	X												
43	Liquid propellant	X	X					X	X					
44	Solid / Hybrid propellant	X												
45	Supersonic Air Breathing Engines:Ramjet/Scramjet	X	X											
46	Startup/Shutdown Calculation	X	X					X	X					
	NOZZLES													
47	Generic con-div 1D nozzles	X	X		X			X	X					
48	Advanced nozzles: high order numerical schemes	X												
49	Simplified cooling jackets (two-phase)	X	X					X	X					
50	Advanced cooling jackets (3D wall)	X												
51	Liquid Film Cooling / Gaseous Film Cooling	X												
52	Transient calc. (startup, ...)	X	X				X	X	X	X	X		X	
	SPACE PROPULSION SYSTEMS													
53	Advanced chemical propulsion architectures	X	X											
54	In-space electrical propulsion: EP thruster,GIT,HET, etc.	0D	0D											
55	Nuclear propulsion: thermal and electric systems	X												
56	Orbital mechanics library	X												
	TURBOMACHINERY													
57	Turbines and compressors	X	X		X	X	X	X	X	X				X
58	BETA / ZETA / MFT maps		X		X	X		X	X					
59	Gamma / Reynolds corrections				X	X								
60	Secondary Air System bleeds	X			X	X								
61	Variable Stator Vane Angle				X									
62	Cooled turbines	X	X		X		X	X	X	X				
63	Cold compressors	X	X				X	X	X	X				
64	Screw compressors						X			X				
65	Ideal compressors	X	X		X	X	X	X	X	X				
66	Turbine	X	X		X	X	X	X	X	X				
67	Turbine with brake						X							
68	Pumps	X	X			X	X	X	X	X				
69	Engine & Vacuum pump	X	X					X	X					
	INDUSTRIAL DEVICES													
70	Industrial reactors		X	X							X			
71	Cabin and crew			X		X								
72	Weather/Environmental influence									X				
73	Human presence			X						X				
74	Thermal envelope									X				
75	Absorber			X			X							
76	Phase separators			X		X	X	X						
77	Multistreams heat exchangers						X							

