

How the text book “Physically Based Rendering (3rd ed.)” is used in 02941

The following table provides an overview of how we use the text book (**P**) in our course. The table shows which parts of the book that are part of the prerequisites. Some of the prerequisites are repeated in the curriculum, but this time they are covered more in depth and from a physically based perspective. Overlap between **P** and other reading material sometimes used in the course is also indicated.

subject	sections in P	prerequisite	in curriculum	other text	commentary
Introduction	1–1.1		x		
Ray tracing	1.2	x	x		
History of PBR	1.7		x		
3D math	2–2.8	x			partly in 01005
Simple shapes	3–3.2.3	x			
Triangle meshes	3.6	x			
KD-tree accelerator	4.4	x			
Color	5–5.3	x	x	HD	
Radiometry	5.4–5.6	x	x		
Camera models	6–6.2	x	x		
Stratified sampling	7.3	x			
Reflection models	8–8.5	(x)	x		except 8.1
Materials	9–9.2			LM	
Texture	10.2–10.3	x			
Volume scatter	11–11.3		x	LM	
Subsurface scatter	11.4		x		
Light sources	12–12.5	(x)	x	HD	
Monte Carlo	13–13.7		x		
Importance	13.10–14.1.3		x		
Sampling lights	14.2		x		
Direct lighting	14.3	(x)	x		
Path tracing	14.4–14.5		x		
Volume rendering	15–15.3		x	LM	
BSSRDF sampling	15.4		x		
Diffusion	15.5		x		
Path-space	16–16.1		x		
Photon mapping	16.2	(x)	x		

P Pharr, M., Jakob, W., and Humphreys, G. *Physically Based Rendering: From Theory to Implementation*, third edition. Morgan Kaufmann/Elsevier, 2017. <http://www.pbrt.org/>.

HD Reinhard, E., Ward, G., Pattanaik, S., Debevec, P., Heidrich, W., and Myszkowski, K. *High Dynamic Range Imaging: Acquisition, Display, and Image-Based Lighting*, second edition. Morgan Kaufmann/Elsevier, 2010.

LM Frisvad, J. R., Christensen, N. J., and Jensen, H. W. Predicting the appearance of materials using Lorenz-Mie theory. In W. Hergert and T. Wriedt, eds., *The Mie Theory: Basics and Applications*, Springer Series in Optical Sciences, Vol. 169, Chapter 4, pp. 101-133, July 2012.