

Information for Nuclear PE Exam Specification Area 5 Not Covered by the Module Program

The following refers users to places in two documents where they can find information regarding the topical material under Specification Area 5 for the Nuclear PE Exam.

Key:

Single Reference Handbook: This is the reference material that is available to exam takers while taking the exam. Also called the *PE Nuclear Reference Handbook*, this document is available from NCEES. Log in to your [MyNCEES account](#) to download your copy.

ANS Study Guide: The *Study Guide for the Professional Engineering Exam in Nuclear Engineering* is published by ANS and contains nearly 900 pages of information pertaining to the PE exam. Included are suggested references to prepare for the exam and notes on major work behaviors and nuclear power systems problems as well as solutions. Sample exams with solutions are also provided. The ANS Study Guide can be purchased online at <https://www.ans.org/store/item-690025/>.

Specification Area 5 Topics:

Design-Basis Analysis

Fuel Performance Analysis

- Single Reference Handbook (Version 1.2.1)¹
 - Page 194 – 198
- ANS Study Guide
 - Page I-97 – I-101, I-102 – I-114 (Problems #23 - 28), A-6 (Problem #17), B-8 (Problem #64)

Pellet-Clad Interaction

- Single Reference Handbook (Version 1.2.1)
 - Page 81, 85, 198
- ANS Study Guide
 - Page I-97, II-40 (Problem # 12), A-6 (Problem #17), B-8 (Problem #64)

Core Thermal-Hydraulic Analysis

- Single Reference Handbook (Version 1.2.1)
 - Page 95 – 97, 145, 151, 194

¹ The page numbers for the NCEES single reference handbook refer to the document page number not the pdf page number.

- ANS Study Guide
 - Page I-97 – I-101, I-102 – I-114 (Problems #23 - 28), I-173 (Problems #37 and #38), I-181 (Problems #194, #493, and #495)

Critical Heat Flux

- Single Reference Handbook (Version 1.2.1)
 - Page 13 – 16, 22, 23, 33 – 35, 341
- ANS Study Guide
 - Page I-97 – I-101, I-102 – I-114 (Problems #23 - 28)

Departure from Nucleate Boiling

- Single Reference Handbook (Version 1.2.1)
 - Page 13 – 23, 33 – 35, 341
- ANS Study Guide
 - Page I-97 – I-101, I-102 – I-114 (Problems #23 - 28)

LOCA Transient Analysis

- Single Reference Handbook (Version 1.2.1)
 - Page 2, 3, 79, 80, 89 – 92, 129, 133 – 135, 160 - 163
- ANS Study Guide
 - Page I-91, (Problem #20)

Long-Term Cooling

- Single Reference Handbook (Version 1.2.1)
 - Page 172, 186 - 190
- ANS Study Guide
 - Page I-149, (Problems #29 - 36)

Non-LOCA Transient Analysis

- Single Reference Handbook (Version 1.2.1)
 - Page 79, 80, 85, 141, 145, 167, 175, 341 - 349
- ANS Study Guide
 - Page IV-5, IV-117 (Problems #44)

Containment Performance

- Single Reference Handbook (Version 1.2.1)
 - Page 89 – 93, 135 – 137, 141, 146, 163 – 165

Technical Specifications

- Single Reference Handbook (Version 1.2.1)
 - Page 145, 175 – 180

Safety Analysis Report

- Single Reference Handbook (Version 1.2.1)
 - Page 175 – 180

Environmental Impact Statement

- Single Reference Handbook (Version 1.2.1)
 - Page 175, 210, 257

Probabilistic Risk Assessment and Severe Accident Analysis

Uncertainty Analysis

- Single Reference Handbook (Version 1.2.1)
 - Page 111, 112
- ANS Study Guide
 - Page I-45, I-54, III-143 (Problem #33), A-11 (Problem #37), C-17 (Problem #529)

Reliability Analysis

- Single Reference Handbook (Version 1.2.1)
 - Page 2 – 4, 86 – 89, 372
- ANS Study Guide
 - Page I-181 (Problems #195 and 495)

Station Blackout

- Single Reference Handbook (Version 1.2.1)
 - Page 2 – 4
- ANS Study Guide
 - Page I-51, I-52

Core Damage Frequency

- Single Reference Handbook (Version 1.2.1)
 - Page 89 – 93, 372

- ANS Study Guide
 - Page I-51, I-52, I-59 (Problem #9)

Risk Mitigation Systems

- Single Reference Handbook (Version 1.2.1)
 - Page 89 – 93, 341, 372

Severe Accident Phenomena

- Single Reference Handbook (Version 1.2.1)
 - Page 80, 89 – 93
- ANS Study Guide
 - Page I-4