교과목번호 (Subject No.)	459.573	강좌번호 (Course No.)	001	교과목명 (Subject Title)	몬테카를로 방사선해석 (Monte Carlo Radiation Analysis)	학점 (credit)	3

담당교수 (Lecturer)	성명 (Name): 김 은희 (Eun-Hee Kim) 내선 (ext.) : 7208			Homepage :			
	E-mail : eunhee@snu.ac.kr			전화번호 (Tel) : 02-880-7208			
	면담시간/장소(Counsel/Location): Tue. & Thr. 1:00-3:00pm/ Bldg. 32 Rm. 212						

수업목표 (Goal)	- 물리량의 통계적 변동 특성을 기술하는 수학적 모델을 학습하고, - 방사선의 물질 반응 요소를 이해하며, - Monte Carlo 방법의 계산 효율 향상을 위한 기술적 접근 방안을 검토하여, - 자료의 수용 여부에 대한 평가 기준을 확인하고 계산 결과의 신뢰도를 판정함. - Monte Carlo 기반 programming 과제를 수행함.
	- to learn the mathematical models for statistical variation of physical quantities, - to understand the radiation interactions with matter, - to discuss methodology for improving efficiency of Monte Carlo calculation, - to identify the guidelines on data evaluation and define the confidence level of results, and - to exercise problem solving.

교재 및 참고문헌 (Textbook/ References)	**References** - "Monte Carlo Simulation in the Radiological Sciences," Richard L. Morin (ed.), CRC Press, Inc. (1988) - "A Monte Carlo Primer: A Practical Approach to Radiation Transport," Staphen A. Dupree and Stanley K. Fraley, Kluwer Academic/Plenum Publishers (2002). **Supplementary notes** - will be provided for students to download via eTL.

평가방법 (Evaluation)	출석 (Attendance)	과제 (Project)	중간시험 (Midterm Test)	기말시험 (Final Test)	평소학습 (Self-Study)	기타 (Etc.)	합계 (Total)
	20%	40%	%	40%	%	%	100%
비고(Note)	Anybody cheating in the test will be given "F".						

수강생 참고사항 (Note for Students)	There will be a homework given at the end of lecture on the relevant topic. Each homework is due on Tuesday of the 2nd week from the assignment date. Penalty will be given for late submission of the material (10% deduction in points per class hour).

주(Period)	강의내용 (Contents)
1주	Introduction/ Probability and Statistics
2주	Rationale of Monte Carlo Simulation
3주	Random Sampling/ Random Number Generator
4주	Reading Assignment
5주	Random Number Test I
6주	Random Number Test II
7주	Variance Reduction: Techniques
8주	Variance Reduction: Practice
9주	Correlated Sampling/ Estimators
10주	Photon Transport
11주	Electron Transport I
12주	Electron Transport II
13주	Electron-Gamma Inter-transport Simulation
14주	Transport in Media
15주	Summary, **Final Test**

강의계획 (Lecture Schedule)