

MODULE HANDBOOK

Course:	Quantum Optics
Module Level:	Undergraduate
Code:	FIT403
Sub-heading, if applicable:	-
Courses included in the module, if applicable:	-
Semester/Term:	7 th / Fourth Year
Module Coordinator:	R.Arif Wibowo, Drs.,M.Si.
Lecturer(s):	R.Arif Wibowo, Drs.,M.Si.
Language:	Bahasa Indonesia
Classification within the Curriculum	Compulsory Course / Elective Course
Teaching format / class hours per week during semester:	2 hours of lectures (50 minutes/hour)
Workload:	2 hours of lectures, 2 hours of tutorial and structured activities, 2 hours of individual activities, 13 weeks per semester, and total 78 hours per semester ~ 2,6 ECTS*
Credit Points:	2
Requirement(s):	(FIT303) Electricity and Magnetism, (FIT 206) Physics of Wave, and (FIT301) Quantum Physics
Learning Goals/Competencies:	<p>General Competences (Knowledge) : After following this course, students understand Coherent State and Squeezed State mathematically, as well as the implementations.</p> <p>Specific Competences:</p> <ol style="list-style-type: none"> 1. Students are able to differentiate coherent and squeezed state mathematically. 2. Students understand semi classical detection light photoelectric theory and quantization of free electromagnetic fields. 3. Students are able to explain some coherent and squeezed state applications.
Contents:	The course discusses the theory of semi classical Detection Light Photoelectric, Quantization of Free Electromagnetic Fields, State of Coherent Electromagnetic Fields, State of Squeezed Light, Quantum Effects in Nonlinear Optics.
Soft Skill Attribute	Good communication, Organization, Leadership, Logic, Ethics, Effort and Group
Study/Exam Achievements:	<p>Students are considered to be competent and passed if at least get 50% of maximum mark of the midterm test, final examination, quizzes and home work.</p> <p>Final score is calculated as follow: 20 % homework + 10% Quizzes + 32.5% midterm test + 32.5% final exam + 5% soft skill.</p> <p>Final grade is defined as follow :</p> <p>A : 75 – 100</p>

	AB : 70 - 74.99 B : 65 - 69.99 BC : 60 - 64.99 C : 55 - 59.99 D : 40 - 54.99 E : 0 - 39.99
Learning Methods:	Lecture, discussion, tutorial
Form of Media:	Powerpoints slides, LCD projectors and whiteboards
Literature(s):	<ol style="list-style-type: none"> 1. Ficek, Z., dan Wahidin, M.R., 2004, <i>Quantum Optics, Fundamentals & Applications</i>, Research Center IIUM. 2. Mandel, L., dan Wolf, E., 1995, <i>Optical coherent and Quantum Optics</i>, Cambridge University Press, USA. 3. Walls, D.F., dan Milbur, G.J., 1994, <i>Quantum Optics</i>, Springer Verlag, Berlin. 4. Perina, J., Hradil, Z., dan Jurco, B., 1994, <i>Quantum Optics and Fundamental Of Physics</i>, Kluwer Academic Publishers. 5. Yazdi, Z.S., dan Marina, I.L., 2006, <i>Coherent States and Squeezed States</i>, Department of Physics and Astronemics.
Notes:	*Total ECTS={{total hours workloadx50 min}/60 min}/25 hours Each ECTS is equals with 25 hours