UNIVERSITAS GADJAH MADA
Faculty of Mathematics and Natural Sciences
Department of Mathematics
Sekip Utara Bulaksumur Yogyakarta 55281 Telp: +62 274 552243 Fax: +62 274 555131 Email: math@ugm.ac.id Website: http://math.fmipa.ugm.ac.id

Doctor in Mathematics

Telp : +62 274 552243
Email : maths3@ugm.ac.id; kaprodi-s3-matematika.mipa@ugm.ac.id
Website : http://s3math.fmipa.ugm.ac.id/

MODULE HANDBOOK

Module designation	***Advanced Computation of Mathematics***
Code, if applicable	MMM 7603
Subtitle, if applicable	*Advanced Computation of Mathematics*
Semester(s) in which the module is taught	*1st or 2nd semester*
Person responsible for the module	*Chair of the Lab. of Computation of Mathematics*
Language	*Bahasa Indonesia*
Relation to curriculum	~~*Compulsory*~~ */ elective /* ~~*specialisation*~~
Teaching methods	*case based learning*
Workload (incl. contact hours, self-study hours)	*Total workload is 232 hours per semester, which consists of 50 minutes lectures per week, 120 minutes structured activities per week, 120 minutes individual study per week, in total is 16 weeks per semester, including mid exam and final exam.*
Credit points in Credit Units	*3*
Required and recommended prerequisites for joining the module	*existing competences in Numerical Method*
Module objectives/intended learning outcomes	*After completing this course, the students should have able to:* • *CO 1. combine one or more mathematical computational theories* • *CO 2. combine one or more numerical algorithms* • *CO 3. implement and executes algorithms in Matlab or other software.*

<table>
<tr><td>Content</td><td>It is intended to provide doctoral students with training in algorithms and theory in scientific computation at doctoral level as a preparation for research in related areas. It covers the following major topics: Iterative methods for linear systems; Methods for nonlinear system of equations; Numerical methods for ordinary differential equations (ODEs); Fast numerical solvers for elliptic equations.</td></tr>
<tr><td>Examination forms</td><td>oral présentation, essay.</td></tr>
<tr><td>Study and examination requirements</td><td>To pass this course, students must obtain a minimum grade of B. The final mark will be weighted as follows:
<table>
<tr><td>No</td><td>Assessment method</td><td>Weight</td></tr>
<tr><td>1.</td><td>Oral Presentation</td><td>70</td></tr>
<tr><td>2.</td><td>Essay</td><td>30</td></tr>
<tr><td></td><td>Total</td><td>100</td></tr>
</table></td></tr>
<tr><td>Reading list</td><td>
Gilbert Strang, 2012, Computational Science and Engineering, Wellesley- Cambridge Press
Richard L. Burden and J. Douglas Faires., 2016, Numerical Analysis (10th Edition), Brooks/Cole Publishing Company.
L. N. Trefethen and D. Bau III., 1997, Numerical Linear Algebra, Society for Industrial and Applied Mathematics (SIAM).
Robert E White, 2016, Computational Mathematics, Model, Method and Analysis with MATLAB and MPI, Taylor & Francis Group, LLC
Xin-She Yang, 2008, Introduction to Computational Mathematics, World Sci. Publ.
</td></tr>
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CO-PLO Mapping

	PLO 1	**PLO 2**	**PLO 3**	**PLO 4**	**PLO 5**	**PLO 6**
CO 1	V	V	V		V	V
CO 2	V	V	V			
CO 3	V		V		V	

Last Modified Date :