<table>
<tr><td>Module designation</td><td>Problem Solving<br>Indonesian title: Pemecahan Masalah<br>Course code: 8420202148</td></tr>
<tr><td>Semester(s) in which the module is taught</td><td>Semester 4 (Second year)</td></tr>
<tr><td>Person responsible for the module</td><td>Coordinator: Prof. Dr. Tatag Yuli Eko Siswono, M.Pd.<br>Teaching staff: Prof. Dr. Tatag Yuli Eko Siswono, S.Pd., M.Pd.; Prof. Rooselyna Ekawati, Ph.D.; Dr. Abdul Haris Rosyidi, S.Pd., M.Pd.; Dr. Ali Shodikin, S.Pd., M.Pd.; Nurus Saadah, S.Pd., M.Pd.; Novita Vindri Harini, M.Pd.</td></tr>
<tr><td>Language</td><td>Indonesian</td></tr>
<tr><td>Relation to curriculum</td><td>Elective</td></tr>
<tr><td>Teaching methods</td><td>Lectures, tutorial assignments, and individual study<br>Media and tools: Slides and LCD projectors, whiteboard</td></tr>
<tr><td>Workload (incl. contact hours, self-study hours)</td><td>(Estimated) total workload: 2 CU × 170 minutes × 16 weeks = 5,440 minutes = 90.67 hours (≈ 3.18 ECTS)<br>Contact hours: lectures, 2 × 50 minutes per week × 16 weeks = 26.67 hours (class hours per week: 340 minutes = 5.67 hours, including structured activities)<br>Private study including examination preparation: structured assignments, 2 × 60 minutes per week × 16 weeks = 32.00 hours; independent study, 2 × 60 minutes per week × 16 weeks = 32.00 hours (total 64.00 hours)</td></tr>
<tr><td>Credit points</td><td>2 CU (3.18 ECTS)<br>1 CU = 170 minutes per week × 16 weeks = 45.3 hours; 1 ECTS = 28.48 hours (144 CU = 229 ECTS), so 1 CU = 1.59 ECTS (UNESA Rector's Decree No. 736/HK/KM/2023).</td></tr>
<tr><td>Required and recommended prerequisites for joining the module</td><td>None</td></tr>
<tr><td>Module objectives/intended learning outcomes</td><td>Programme learning outcomes (PLO) addressed:<ul><li>PLO-6: Demonstrate mathematical knowledge and insight.</li><li>PLO-7: Demonstrate pedagogical knowledge in designing, implementing and evaluating mathematics learning.</li><li>PLO-10: Make decisions based on data/information in completing tasks that are the student's responsibility and evaluating the work that has been done.</li></ul></td></tr>
<tr><td>Content</td><td>Studying the definition of problems, types of problems, problem-solving strategies, and stages of problem solving and their application through IT-assisted task-based active learning.</td></tr>
<tr><td>Examination forms</td><td>Final score is calculated from the weekly assessment scheme below (CLO/PLO addressed and weight of each assessment):
<table>
<tr><th>Week</th><th>CLO</th><th>PLO</th><th>Weight (%)</th></tr>
<tr><td>1</td><td>CLO-1</td><td>PLO-6</td><td>5</td></tr>
<tr><td>2</td><td>CLO-1</td><td>PLO-6</td><td>5</td></tr>
<tr><td>3</td><td>CLO-1</td><td>PLO-6</td><td>5</td></tr>
<tr><td>4</td><td>CLO-1</td><td>PLO-6</td><td>5</td></tr>
<tr><td>5</td><td>CLO-1</td><td>PLO-6</td><td>5</td></tr>
</table></td></tr>
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| | | | | |
|---|---|---|---|---|
| | 6 | CLO-2 | PLO-7 | 5 |
| | 7 | CLO-2 | PLO-7 | 5 |
| | 8 | CLO-2 | PLO-7 | 10 |
| | 9 | CLO-2 | PLO-7 | 5 |
| | 10 | CLO-3 | PLO-10 | 5 |
| | 11 | CLO-3 | PLO-10 | 5 |
| | 12 | CLO-3 | PLO-10 | 5 |
| | 13 | CLO-3 | PLO-10 | 5 |
| | 14 | CLO-4 | PLO-10 | 5 |
| | 15 | CLO-4 | PLO-10 | 5 |
| | 16 | CLO-4 | PLO-10 | 20 |

**Study and examination requirements**

Students are considered competent and pass if the final score is at least 55 or C.

**Final index (grade conversion):**

| Index | Converted score | Score range (A = final score) |
|---|---|---|
| A | 4.00 | 85 ≤ A ≤ 100 |
| A- | 3.75 | 80 ≤ A < 85 |
| B+ | 3.50 | 75 ≤ A < 80 |
| B | 3.00 | 70 ≤ A < 75 |
| B- | 2.75 | 65 ≤ A < 70 |
| C+ | 2.50 | 60 ≤ A < 65 |
| C | 2.00 | 55 ≤ A < 60 |
| D | 1.00 | 40 ≤ A < 55 |
| E | 0.00 | 0 ≤ A < 40 |

**Reading list**


1. Polya, G. (2004). How to solve it: A new aspect of mathematical method (Vol. 85). Princeton university press.
2. Ekawati, R et.al (2024). Belajar dan Mengajar Pemecahan Masalah Matematika. Haura Utama
3. Siswono, Tatag Y.E.S, 2018. Pembelajaran Matematika Berbasis Pengajuan dan Pemecahan Masalah Untuk Meningkatkan Kemampuan Berpikir Kreatif. Bandung: Rosda Karya
4. Krulik, S. Rudnick, J.A (1989). Problem Solving: Hand Book for Senior High School Teachers, Toronto: Allyn and Bacon