p-ISSN : 2301-8402, e-ISSN : 2685-368X, available at : https://ejournal.unsrat.ac.id/index.php/elekdankom

Integration of RPS and Sub-CPMK Grading in INSPIRE for OBE Evaluation

Monica Tangui, Alwin Sambul, Sary Paturusi
Master Program of Informatics, Postgraduate Program, Sam Ratulangi University, Manado, Indonesia
emails: monicatangui@unsrat.ac.id, asambul@unsrat.ac.id, sarypaturusi@unsrat.ac.id
Received: 20 December 2025; revised: 15 January 2026; accepted: 21 January 2026

Abstract — The Semester Learning Plan (RPS) acts as a learning contract that aligns outcomes, learning activities, and assessment. In many study programs, RPS authoring and grading are still handled as separate processes, making the link between Sub-CPMK, assessments, and student grades difficult to trace and prone to weighting errors. This paper presents the design of an integrated RPS and grading workflow in the INSPIRE application to support Outcome-Based Education (OBE) at Universitas Sam Ratulangi. The integration enables course RPS owners to define Sub-CPMK, select assessment types, and distribute weights under consistent validation rules, while lecturers can submit grades via automatic synchronization from course assignments or manual entry for specific Sub-CPMK. The application also provides an automatic evaluation-plan preview that calculates weight distributions, a grade recap, and a grade-lock mechanism to preserve data integrity once finalized. The resulting design improves efficiency and transparency of grading and strengthens alignment with OBE principles, including institutional policies that prioritize participatory activities and project outcomes. The integrated workflow produces more accountable assessment records and better-prepared academic data for reporting and continuous improvement.

Keywords — semester learning plan; Sub-CPMK; assessment; grading; OBE.

I. Introduction

The Semester Learning Plan (RPS) is a semester-level instructional planning document that outlines learning objectives, content, teaching methods, assessment strategies, and learning resources for a course. A well-constructed RPS not only describes weekly learning activities but also clarifies how learning outcomes are measured through aligned assessment instruments. Under the Outcome-Based Education (OBE) approach, the relationships among program learning outcomes (CPL), course learning outcomes (CPMK/CLO), Sub-CPMK (Sub-CLO), and assessment evidence should be traceable, so that student grades reflect the intended attainment of designed learning outcomes.

A common challenge is that RPS development and grade submission are often executed through separate mechanisms that are not structurally connected to the learning-outcome hierarchy. As a result, lecturers frequently have to recap grades and compute assessment weights manually, and study programs face difficulties in providing consistent assessment evidence for curriculum audits and quality assurance. To address this need, the INSPIRE application is designed to place RPS, assessment planning, course assignments, and grade submission within a single integrated data workflow.

II. Research Method

The development of the integrated RPS and grading workflow employed a prototype method, enabling rapid validation of the workflow design through iterative user feedback. The data elements considered include CPMK/CLO, Sub-CPMK/Sub-CLO, assessment types, course assignments, course-contract data, and student grades.

The workflow represents the OBE chain at the course level:

1. RPS Owner (Course Coordinator) defines CPMK and Sub-CPMK, then links each Sub-CPMK to assessment types and weight distributions.
2. Course Lecturer creates course assignments and connects them to the assessment structure defined in the RPS.
3. Student Grades are submitted either (a) by automatic synchronization from linked assignments or (b) via manual entry per Sub-CPMK when required.
4. After finalization, the lecturer generates a grade recap and locks the grades so that both weights and grades are stored permanently as evidence for outcome-attainment calculation.

INSPIRE is implemented as a web application and enforces weight validation rules to ensure that evaluation planning adheres to university policy. One adopted policy requires Participatory Activity (AP) and Project Output (HP) assessments to be included in every course, with a combined minimum weight of 50% before other assessment categories can be activated.

III. Result and Discussion

A. RPS Authoring and Mandatory Assessment Rules

During RPS authoring, the INSPIRE application explicitly guides lecturers through a structured configuration of learning outcomes and assessment planning to ensure consistency with Outcome-Based Education (OBE) principles. At this stage, the RPS owner (e.g., course coordinator) defines the Sub-CPMK (Sub-CLO) items as measurable components derived from the main CPMK/CLO. Each Sub-CPMK is designed to represent a

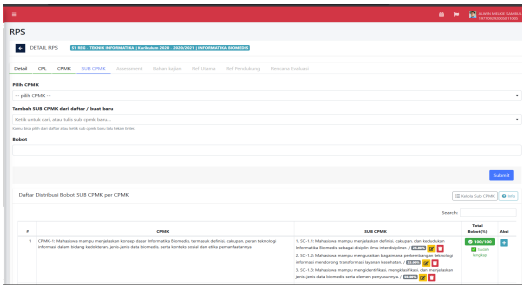

Figure 1. Sub-CPMK Management in RPS

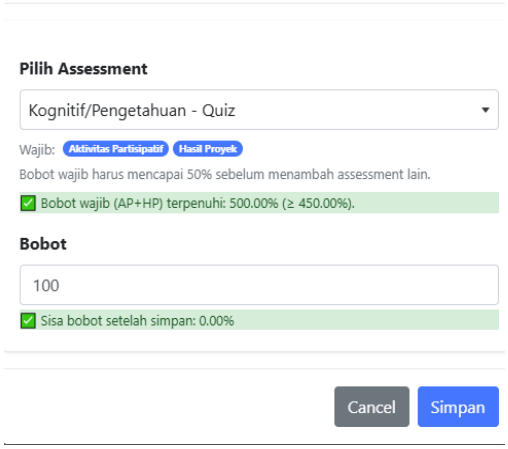

Figure 2. Assessment Entry and Validation

specific competency target and becomes the smallest unit of traceability for assessment evidence and grading.

A key feature implemented in this module is the mandatory assessment-rule enforcement. Participatory Activity (AP) and Project Output (HP) must always be included for each course, and their combined weight must be at least 50% of the total grading composition. This rule is embedded to align evaluation practices with institutional policy that prioritizes active learning, student engagement, and project-based outcomes rather than relying heavily on purely cognitive testing. By making these rules visible and enforceable at the authoring stage, INSPIRE reduces the possibility of inconsistent grading models between classes or between semesters, which is a common issue when the RPS and grading plans are created manually.

In practical terms, the system prevents the user from finalizing the evaluation structure if mandatory components are missing or if weight allocation violates the minimum threshold. This validation provides immediate feedback to the RPS owner and encourages more balanced assessment design. As a result, the RPS document becomes not only a planning artifact but also a formal reference that can be audited and directly linked to grading implementation.

Figure 1 illustrates how the RPS owner can add Sub-CPMK items along with their associated weights and manage existing Sub-CPMK entries through edit and delete actions.

B. Assessment Configuration and Weight Preview

After Sub-CPMK items are defined, the next step is configuring the assessment types and their weight

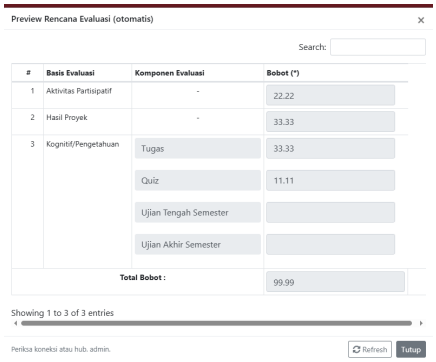

Figure 3. Evaluation-Plan Preview

Table 1. Sub-CPMK-Based Grading Mechanisms

Mechanism	Brief Description
Automatic synchronization	Grades are pulled from course assignments that have been linked to the configured assessments
Manual input	Lecturers enter numeric grades per student per Sub-CPMK
Grade recap	The system consolidates available grades and produces letter grades
Grade lock	Grades can be locked per class to prevent further changes

contributions. INSPIRE supports the selection of assessment categories (e.g., AP, HP, assignments, quizzes, or other institutionally defined components) and enforces weight constraints so that the overall composition remains coherent. This part addresses a frequent operational issue in conventional grade management: lecturers often compute and adjust weights using spreadsheets or manual calculations, which increases the risk of arithmetic errors, missing components, and unclear alignment to outcomes.

The application supports assessment selection and weight input under enforced validation. This reduces errors that typically occur when weights are calculated outside the system.

INSPIRE provides an evaluation-plan preview that automatically calculates weight distribution based on the configured assessments. In an implementation example, the evaluation basis may be distributed as Participatory Activity (22.22%), Project Output (33.33%), and Cognitive/Knowledge components subdivided into assignments (33.33%) and quizzes (11.11%). This preview helps lecturers ensure that the total weight approaches 100% without manual computation.

C. Sub-CPMK-Based Grade Submission Workflow

The most critical result of this study is the implementation of a Sub-CPMK-based grading workflow that bridges the RPS evaluation plan and the actual grade submission process. Instead of entering grades only as final totals, INSPIRE encourages lecturers to record grades at the level of Sub-CPMK, ensuring that each grade has a clear relationship to specific learning outcomes and assessment evidence. This approach improves traceability and makes it possible to interpret student performance beyond a single aggregate score.

p-ISSN : 2301-8402, e-ISSN : 2685-368X, available at : https://ejournal.unsrat.ac.id/index.php/elekdankom

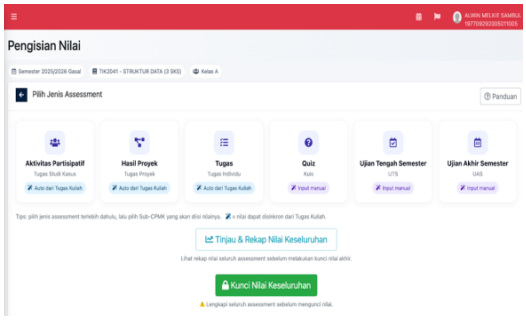

Figure 4. Grade Submission Interface

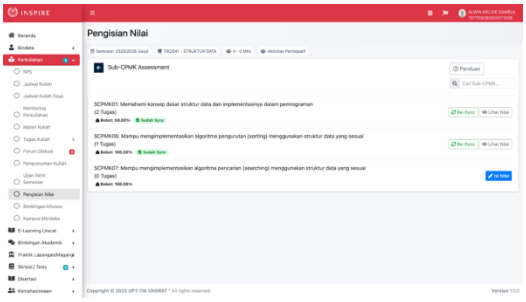

Figure 5. Grade Submission per Sub-CPMK

On the grade-submission side, the system provides Sub-CPMK guidance to help lecturers select assessments, view related Sub-CPMK lists, and decide whether to retrieve grades from linked assignments or to enter them manually. The interface provides entry points for assessment selection and grading actions within the structured Sub-CPMK framework.

Lecturers can focus grading at the Sub-CPMK level to maintain outcome traceability, ensuring that each recorded grade corresponds to the intended outcome structure.

D. Academic Control, Recap, and Data Integrity

To support academic governance and reliable reporting, INSPIRE incorporates controls that reduce post-submission inconsistencies. The system restricts grade changes to an open grading period only, ensuring that grade edits occur within the institution's approved schedule. This helps prevent retrospective changes that could compromise fairness, auditability, or accreditation documentation.

With automated conversion to letter grades, the risk of errors in computing GPA-related indicators can be reduced. The conversion rules ensure consistent mapping from numeric scores to institutional letter-grade standards across different classes and lecturers. When synchronization is not applicable, lecturers can enter numeric grades manually for specific Sub-CPMK items.

After grades are declared final, the recap and grade-lock mechanism ensures data integrity. Grade locking prevents post-finalization edits and preserves weight and grade data as assessment evidence. Overall, this integration strengthens the linkage between instructional planning, assessment execution, and grade reporting, aligning with OBE principles and quality assurance needs.

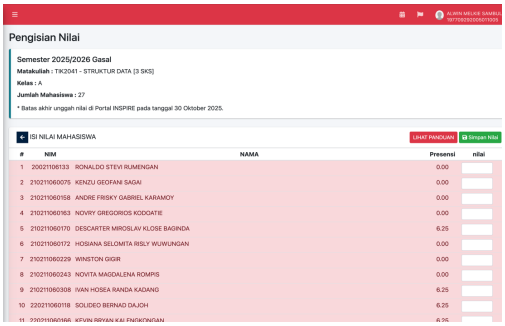

Figure 6. Manual Grade Entry

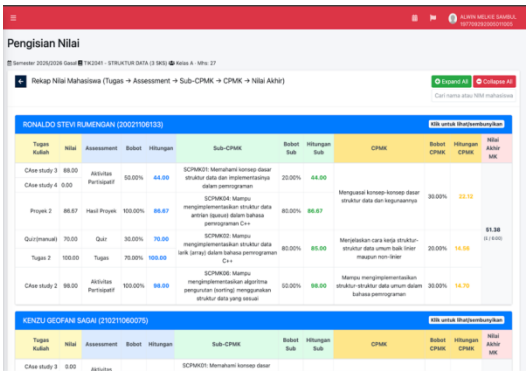

Figure 7. Grade Recap and Finalization

IV. Conclusion

Integrating RPS authoring and grade submission in INSPIRE enables Sub-CPMK-based grading to be implemented in a more directed and traceable manner. Mandatory-assessment validation, automatic weight-distribution preview, grade synchronization from course assignments, grade recap, and grade locking collectively improve transparency and accountability in learning evaluation. The proposed design helps ensure that student grades represent learning-outcome attainment as defined in the RPS and provides a strong data foundation for monitoring and continuous improvement..

References

[1] Syafruddin Nurdin, "Pengembangan kurikulum dan rencana pembelajaran semester (RPS) berbasis KKNI di perguruan tinggi," Al-Fikrah: Jurnal Manajemen Pendidikan, vol. 5, no. 1, pp. 21–30, 2018.

[2] A. H. Aziira, H. Kamil, and A. D. Kartika, "Pembangunan Sistem Informasi Pengelolaan Rencana Pembelajaran Semester (RPS)," J. Nas. Teknol. dan Sist. Inf. (TEKNOSI), vol. 9, no. 2, pp. 103–112, 2023, doi: 10.25077/TEKNOSI.v9i2.2023.103-112.

[3] N. S. Adilah, A. Rachmadian, and D. Wulandari, "Pengembangan sistem informasi berbasis Progressive Web App untuk Rencana Pembelajaran Semester (RPS) di Jurusan Teknik Informatika, Universitas Negeri Gorontalo," Jurnal Teknologi dan Sistem Komputer, vol. 10, no. 3, pp. 123–130, 2022.

[4] T. A. Firdaus, R. H. Putra, F. Arifandi, M. K. Anam, and L. Lathifah, "Implementasi sistem Rencana Pembelajaran Semester berbasis web untuk mempermudah proses pembelajaran," J. Teknoinfo, vol. 17, no. 1, pp. 156–169, 2023, doi: 10.33365/jti.v17i1.2348.

[5] U. Hasanah and A. R. Sibilana, "Digital transformation in lesson planning: Automating semester learning plans to improve pedagogical effectiveness," Qalamuna: Jurnal Pendidikan, Sosial, dan Agama, vol. 17, no. 1, pp. 351–364, 2025, doi: 10.37680/qalamuna.v17i1.6583.

[6] Ronald M. Harden, Joy R. Crosby, and Margaret H. Davis, "Outcome-

based education: Part 1—An introduction to outcome-based education," Med. Teach., vol. 21, no. 1, pp. 7–14, 1999, doi: 10.1080/01421599979969.

[7] John Biggs, "Enhancing teaching through constructive alignment," Higher Education, vol. 32, no. 3, pp. 347–364, 1996, doi: 10.1007/BF00138871.

[8] Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia, Penerapan Outcome-Based Education dalam Pencapaian Indikator Kinerja Utama Perguruan Tinggi. Jakarta, Indonesia: Kemendikbudristek, 2021.

[9] D. Gunawan, A. Maulana, S. Alfarizi, A. R. Mulyawan, N. Ichsan, and H. Basri, "Implementasi metode prototype dalam perancangan presensi karyawan berbasis Android pada PT Jedi Global Teknologi," Profitabilitas, vol. 4, no. 2, pp. 52–60, 2024, doi: 10.31294/profitabilitas.v4i2.7484.

[10] U. H. Mulyanto, S. Wahyuni, N. Sitompul, and V. Wijaya, "Metode prototype dalam perancangan sistem informasi tambahan penghasilan pegawai (TPP) Kabupaten Sambas," Jurnal Sains dan Teknologi, vol. 4, no. 3, pp. 159–166, 2023.

[11] T. Widyaningrum, Q. Sholihah, and B. S. Haryono, "The DeLone and McLean Information System Success Model: Investigating User Satisfaction in Learning Management System," J. Educ. Technol., vol. 8, no. 1, pp. 86–94, 2024, doi: 10.23887/jet.v8i1.71080.

[12] William H. DeLone and Ephraim R. McLean, "The DeLone and McLean model of information systems success: A ten-year update," J. Manage. Inf. Syst., vol. 19, no. 4, pp. 9–30, 2003, doi: 10.1080/07421222.2003.11045748.

[13] Restu Mufanti, Don Carter, and Neil England, "Outcomes-based education in Indonesian higher education: Reporting on the understanding, challenges, and support available to teachers," Soc. Sci. Humanit. Open, vol. 9, Art. no. 100873, 2024, doi: 10.1016/j.ssaho.2024.100873.

[14] Qutaiba I. Ali, "Towards more effective summative assessment in OBE: A new framework integrating direct measurements and technology," Discover Education, vol. 3, Art. no. 107, 2024, doi: 10.1007/s44217-024-00208-5.

[15] Mehul Mahrishi, Seeram Ramakrishna, Samira Hosseini, and Asad Abbas, "A systematic literature review of the global trends of outcome-based education (OBE) in higher education with an SDG perspective related to engineering education," Discover Sustainability, vol. 6, Art. no. 620, 2025, doi: 10.1007/s43621-025-01496-z.