

# ASSESSMENT GUIDELINES OF MASTER PROJECTS

## QUALITATIVE SCALE

<b>Visionary</b>	<b>Grade 10</b>
↑	<i>Break through, top 2%</i>
<b>Innovative</b>	<b>Grade 9</b>
↑	<i>Positive surprises, top 5%</i>
<b>Proficient</b>	<b>Grade 8</b>
↑	<i>Nominal, all is as planned</i>
<b>Explicit</b>	<b>Grade 7</b>
↑	<i>Awareness</i>
<b>Implicit</b>	<b>Grade 6</b>
.	<i>Knowledge existence</i>

## CATEGORIES

<b>Specialization</b>	<b>Student-centered</b>
<b>Research and Design</b>	<b>Work-centered</b>
<b>Execution</b>	<b>Process-centered</b>
<b>Report</b>	<b>Documentation-centered</b>
<b>Presentation and Defense</b>	<b>Communication-centered</b>

## SPECIALIZATION

### Main gradient:

*Knowledgeable and able → Knowledgeable, able and aware → Can use all relevant knowledge and skills → Creates knowledge and techniques → Foresees the future*

### Aspects:

- **Quality of literature review:** Collection of papers Motivated collection Extracted methods and trends Classification Vision on history and future
- **Level of specialized knowledge:** Sufficient understanding Apply and implement in a relevant way Confront, justify work against state-of-the-art Produce novel trade-offs and solutions Visionary interpretation of knowledge
- **Disciplinary knowledge:** Facts, terminology, theories and basic skills Application and analysis skills Able to motivate all decisions Able to create new links and theories Motivated broad and far-reaching vision
- **Ability to connect problem definition to research field or sub-questions:** Able to guess a solution Able to consider conceptual alternatives Abstraction and synthesis skills Able to derive new abstract, conceptual relations Able to produce and defend visionary argumentation

## RESEARCH AND DESIGN

### Main gradient:

*Contains useful information → Provides answers, expectations met → Complete, consistent and relevant → Innovations → Break-through*

### Aspects:

- **Formulation of research questions:** Coherent plan, goals, approaches → Explicit problem definition, research question, research approach → Motivated approach and solid answer to the research question → Methodological creativity or innovations → Societal and scientific benefits
- **Quality and quantity of established results:** Reconfirm established knowledge → Explicit, concrete deliverables → Results at the state-of-the-art level → Results advance theory and application → Demonstration, prototype
- **Creativity, originality, innovative value:** Self-made items → Improvements → Useful and motivated advancements → Proven novelties → Breakthroughs

- **Critical attitude towards results, methods, scope and perspective of research:** Basic checks → Critical considerations → Verification and validation → Criticism on own work and the state-of-the-art → Boundaries before, now and after

## EXECUTION

### Main gradient:

*Follows common-sense, yields results → Follows good practices and advice → Effective, follows best practices → Full ownership → Sets an example*

### Aspects:

- **Level of independence:** Exact instructions needed → Guidance needed → Independent, little guidance → Fully independent → Autonomous and a source of inspiration
- **Commitment and dedication:** Basic work ethics → Positive attitude → Fully responsible → Full project ownership → Drive beyond own project
- **Time planning:** Major goals and milestones achieved → Project goals and milestones achieved in time → Pro-active, independent planning → Full project management → Planning and management beyond the project scope
- **Effectiveness:** Major goals achieved → Effective alignment, coordination, communication → All activities are meaningful and effective → Exceeded expectations → Impact beyond the project scope

## REPORT

### Main gradient:

*Reports useful information → Organizes, interprets information → Clear, well-structured, succinct, accessible, complete → Convinces and sets an example → Lasting impact*

### Aspects:

- **Readability of report:** Understandable with effort → Easily readable → Pleasant, coherent, convincing story → Original, creative style → Submitted to an IEEE journal or conference
- **Problem formulation:** Main problems and goals can be extracted → Explicit problem definition, research questions and goals → Well-structured and motivated problem definitions, research questions and research approach → Quantified problems, questions and approach → Scientific, methodological, societal relevance
- **Quality of content:** Clear what has been done and why → Explicitly validated results → Results can be reproduced → Original content, tutorial value → Ground-breaking content
- **Structure and organization of report:** Coherent flow → Title, abstract, introduction, literature, background theory, application/problem, approach/methodology, paper body, analysis, results, validation, conclusions and reference are properly presented → Easily navigable content → Content-tailored organization → Inspirational organization

## PRESENTATION AND DEFENSE

### Main gradient:

*Presents what is done → Presents and defends what is done → Interactive, confident, complete, well-structured, clear → Creative, convincing → Influences*

### Aspects:

- **Coverage of research outcomes:** Key elements are included → Explicit problems, research questions, and solutions → Effective coverage of all relevant aspects → Presentation adds value → Broad scientific and societal context
- **Presentation skills:** Correct formulations and pace → Eye contact, non-verbal communication → Self-confidence and enthusiasm → Unique style and perfect timing → Inspirational, convincing
- **Quality of supporting material:** Slides show the work → Structured, consistent, attractive slides → Presentation material is meaningful and effective → Creative style, activation and material → Inspirational material, demonstration
- **Discussion skills:** Passive participation → Active participation → Organized and conclusive discussion → Instructive, insightful and creative discussion → Strategizing