
# Development Matrix
# DRAFT

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TU/e
EINDHOVEN UNIVERSITY OF TECHNOLOGY

# 1 Introduction

## 1.1 Recognition & Rewards

TU/e provides scientific education and performs scientific and technological research at the highest possible international level. All with a significant impact on society. First by delivering highly educated and trained engineers and scientists to society, and second by sharing our research results with society and offering solutions for pressing societal challenges. We embrace open science and open education to make our results accessible to society. To achieve these ambitions high quality academic leadership is needed at all levels and disciplines.

In late 2019, the Dutch public knowledge institutes and research funds published a position paper which argues that the system of recognizing and appreciating academics is in need of modernization. The aim of Recognition & Rewards at TU/e is to enable excellence in education, research, impact[1], and leadership. The means to achieve this include:

1. Enable diversified and dynamic career paths driven by the core competences
2. Focusing on rewarding quality over quantity
3. Achieving balance between individuals and collective (team)
4. Stimulating open science
5. Stimulating academic leadership, dedicated to inclusivity, talent development and a safe and trusting working environment

## 1.2 TU/e vision and leading principles

TU/e organized elaborate hearings of faculty in 2021 and articulated a concept vision (July 2021) with six leading principles:

***Principle 1. Trust, support and appreciation***
TU/e supports and enables faculty to develop their personal ambitions and objectives within the core domains and in compliance with the strategic objectives of the university. The TU/e also appreciates diversity in these ambitions and values the professional contributions made to the community. This requires a culture of trust, dedicated coaching and mentoring, and a forward-looking approach while setting realistic objectives. These ambitions may change at different stages of a career and time. Increased flexibility, more dynamic career paths and continuous development may increase job satisfaction and employability, inside or outside of academia.

***Principle 2. Core competences***
Faculty is active in both education and research. A key strength of the TU/e is that research and education are strongly intertwined. This provides our students with educational and training pathways to the frontiers of our knowledge and teaches them to quickly acquire new knowledge and provide solutions for complicated problems.

It is recommended that during the tenure-track at the level of UD2, priority is given to research and education. Tenure assessment will be primarily based on contributions to these two fields unless other arrangements have been made with the department. Developing these domains is already a challenge, and it should prevent that early career faculty feel that they have to perform in all domains.

Starting at the level of UD1, faculty may choose an emphasis on specific domains, i.e. research, education and/or impact. This emphasis needs to be agreed upon with the team/group/department. In this way faculty can develop a specific individual profile, and their performance will be assessed with respect to the chosen profile. This profile is

[1] impact is the contribution made by scientific research, in both the short and the long term, to changes in, or the development of, sectors of society and to challenges facing society. Such sectors of society include the economy, culture, public administration, and healthcare, while the challenges include such issues as climate change, immigration, quality of life, the environment, the rule of law, and security. (Source: KNAW (2018). Tracking Impact [Maatschappelijke impact in kaart], Royal Netherlands Academy of Arts and Sciences, Amsterdam).

not fixed in time. The direction and nature of the chosen profile may adapt and shift with personal development changes in the objectives of the department.

***Principle 3. Balance between individual and the collective, and academic citizenship***
Staff will be recognized for their contribution to their team(s) and their collegiality. Having a team spirit is a cornerstone of the way universities work. There are many examples of having a team spirit, for instance helping colleagues with preparation of project proposals and/or grant interviews, performing tasks within the group such as managing the lab or education responsibilities, or taking care of information sessions and promotional events to attract future students. Next to team spirit, academic citizenship is crucial to create a thriving academic community. Faculty may serve the academic community in a variety of ways. For example, by participating in departmental and university committees, by assuming specific positions in e.g., scientific societies, government and grant agencies. In particular in more senior positions, academic citizenship is considered part of the responsibilities of faculty.

A team is also a powerful entity to achieve excellence. It entails achieving goals together with others, contributing to a joint result, seeing and respecting the competencies and expertise of others and making optimal use of them. It allows for diversification because staff have different talents. Sharing responsibilities may reduce the perceived workload. The composition of a team allows individuals to develop their specific talents (career diversification), while collectively meeting the objectives of the department and university.

***Principle 4. Open Science***
There are many reasons to stimulate Open Science. Replicability and transparency in methods and approaches form the foundation of science and research integrity. Making data available enables the use of that data for new research. Open science is also the answer to demands of society: society funds a large proportion of scientific work, but results are often unattainable because they are behind a paywall. Finally, interaction with the public can make research better, for instance stimulating innovation. Open data forces researchers to be transparent about how they acquired and processed their data and how this data is classified and stored. Often, there is an absence of explicit rewards for the time-consuming efforts made and results achieved by researchers in the field of Open Science. That is why engagement with Open Science will be stimulated and recognized and integrated in academic assessments.

***Principle 5. High-quality academic leadership***
High quality leadership requires permanent attention and a culture of reflection. It is needed to create an environment in which individuals can thrive and collectively meet shared objectives. Leadership that has a strong moral compass, creates, and operated from a shared vision, allows innovative collaborations, and inspires others. Leadership that recognizes and rewards the diverse ambitions in a team and allows and encourages team members to develop their own talents and supports their career development. Leadership that is dedicated to creating an inclusive, safe, and trusting working environment. These leadership qualities need to be developed at all levels. It includes coaching and mentoring of students, PhD candidates, postdocs, and staff, leading a project or chairing a group. In senior positions, leadership capabilities are crucial to facilitate growth of junior faculty and reaching the objectives of a department and the university. Whichever the role, our leaders embody our leadership values: Trust, Openness, Collaboration, and a Personal approach.

***Principle 6. Fair and Individual Assessment based on an agreed upon profile***
TU/e is dedicated to high-quality research, teaching, impact, and leadership. Assessment is a necessary component of career development. Assessment is based on an agreed upon profile and objectives, and a combination of narratives of past achievements and future visions, supported by demonstratable products and quantitative data tailored to the profile and discipline of the individual.

## 1.3 Guidelines for use

The development matrix is designed to support academic career paths at TU/e consistent with the three core responsibilities of the TU/e: education, research and societal impact. To help plan and support career development and recognize achievements, the Development matrix is designed to be used in several ways by staff and managers.

For instance, it can be used for:

- Building a case for promotion
- Assessing cases for promotion
- Preparing for appraisals
- Identifying skill gaps
- Discussing career trajectories
- Identifying development opportunities
- Designing new roles and drawing up job descriptions
- Succession planning
- Considering cases for reward and recognition.

***Three career profiles***

As a university, TU/e has three core responsibilities, namely education, research, and impact. This leads to three academic profiles, with a main focus on education, on research, or on impact. These three profiles are shown in the development matrix and allow more differentiation, based on an individual's talents.

At the level of assistant professor, there is no specification in profiles. TU/e enables assistant professors in a tenure track to develop themselves first in education and research and will focus assessment also on these two domains. At the level of associate professor, there can be some differentiation in profiles. Faculty will continue development in all domains but may be focused on and excel in one specific domain. At the level of full professor, the profiles show a clear distinction. Full professors show excellent performance in one of the domains.

For promotion to associate professor 2 two options are available:

1. Scientists can develop a specific individual profile in education, research, and impact. They are active at the core level in all domains, but also meet the profile specific criteria in their chosen field. Performance will be assessed with respect to the chosen profile.
2. Scientists have a high level of demonstrable knowledge central to the mission of the team in education, research and impact, and have gained broad recognition in their field. For these (core) scientist, further development to associate professor level 1 and beyond is possible by choosing a specific profile.

Faculty must choose their profile in agreement with the department. The profile can vary in time. Its direction and nature may adapt and shift with someone's personal development, with changes in the team and/or in the objectives of the department.

***Requirements***

Requirements are formulated in a cumulative way. If a criterion applies at a certain level, this automatically applies for the levels above. The requirements mentioned in a specific table are the entry level and must be met at the start of the function. This means:

- When recruiting a new assistant professor 2, candidates are expected to already meet the criteria based on previous experience.
- At the level of Assistant professor 2, faculty is expected to develop towards Assistant professor 1.
- To be promoted to the next level (e.g. Assistant professor 1), individuals must meet the requirements of the next level (e.g. Assistant professor 1).

In the tables the specific profiles are shown as 'profile specific'. While developing in the vision, execution and recognition in education, research and impact, faculty with a specific profile will be expected to meet the profile specific requirements.

***Indicators***

The scope of activities and indicators of success listed are broad, reflecting the variety of work at a multidisciplinary university. These indicators are not exhaustive, and a subset will be used during assessment. Indicators will always be discipline specific and a subset needs to be determined in close collaboration with the department.

# Summary

- For promotion to assistant professor 1, there is no specification in profiles.
- For promotion to associate professor 2, either a specific profile is chosen, or a broad competence level fitting with the mission of a team is chosen.
- For promotion beyond associate professor 2, faculty chooses one of the profiles in agreement with the department.
- Full professors show world class performance in one of the domains.

- The profile can vary in time.
- Requirements are formulated in a cumulative way.
- Requirements mentioned are the entry level.
- All faculty is expected to meet the core requirements.
- Faculty with a specific profile will be expected to meet the profile specific requirements.
- Activities and indicators listed are broad and not exhaustive, and a subset will be used during assessment.

# Assistant professor

### Criteria for promotion to Assistant professor 2

| | Education | Research | Impact |
|---|---|---|---|
| **Vision** | Demonstrate interest and articulate meaning of 'good teaching' and student learning | Articulate a vision and ambition for own original and innovative research | Position research in societal context |
| **Execution** | Have demonstratable skills in teaching and/or supervision | Perform and report original and innovative research | |
| **Recognition** | | | |
| **Team & Leadership** | Have collaborative skills<br>Has clear added value to the team | | |

## Criteria for promotion to Assistant professor 1

| | Education | Research | Impact |
|---|---|---|---|
| **Vision** | Articulate an informed vision on teaching and learning | Articulate an informed vision on future research direction of own field | Have an informed vision on the (long-term) societal impact of own research |
| **Execution** | Have developed pedagogical skills (UTQ program)<br>Provide education as responsible teacher by applying teaching and learning methods tailored to the needs of the program, students and intended learning objectives | Extend knowledge base regarding research field and acquire funding as applicant or co-applicant<br>Execute (collaborative) research in own field<br>Achieve demonstratable high quality scientific output and contribute to open science | |
| **Recognition** | | | |
| **Team & Leadership** | Coach and supervise BSc and MSc students<br>Coach and co-supervise junior team members (students, PhD candidates, PDEng trainees, etc)<br>Contribute to a safe and inclusive team environment<br>Develop a collaborative network within the department and university<br>Have proven collaborative skills | | |

# Associate professor

For promotion to associate professor 2 two options are available:

3. Scientists can develop a specific individual profile in education, research, and impact. They are active at the core level in all domains, but also meet the profile specific criteria in their chosen field. Performance will be assessed with respect to the chosen profile.
4. Scientists have a high level of demonstrable knowledge central to the mission of the team in education, research and impact, and have gained broad recognition in their field. For these (core) scientist, further development to associate professor level 1 and beyond is possible by choosing a specific profile.

## Criteria for promotion to Associate professor 2

| | | Education | Research | Impact |
|---|---|---|---|---|
| Vision | Core | Have an informed vision on educational methods and learning objectives of the educational program in own discipline at all program levels (BSc and MSc) | Have an informed vision of own research program | Have a vision on societal impact opportunities of own research |
| | Profile specific | Have an informed vision on the departmental educational program within own discipline | Have an informed vision on the research program of the team | Have a vision on societal impact opportunities of the department |
| Execution | Core | Have translated educational vision in high quality education at BSc and MSc levels | Acquire funding for research as applicant or co-applicant<br>Have a firm knowledge base regarding a (multidisciplinary) research theme | Be involved in departmental and university impact programs |
| | Profile specific | Initiate and acquire funding for own educational innovation and/or research<br>Actively contribute to educational innovation and/or research on education at the departmental level | Initiate and acquire funding own original research theme<br>Coordinate and execute own inno-vative and original research theme and (inter)national projects, resulting in demonstratable scientific output | Initiate and acquire funding for own impact program<br>Coordinate and execute own societal impact activities related to own research program |
| Recognition | Core | Be recognized as high quality educator in the department | Have an (inter)national reputation and international network in own field | |
| | Profile specific | Have national reputation as high quality educator | Have (inter)national reputation and international network in wider research theme | Have developed a network of strategic societal partnerships |
| Team & Leaderstip | Core | Coach and supervise PhD candidates as (co-) supervisor, and/or promotor if ius promovendi has been obtained<br>Have network of (inter-) national collaborators<br>Participate in departmental and/or university projects, working groups and committees<br>Ensure a transparent, safe, inclusive and supportive team culture<br>Contribute to the implementation of the strategic plan of the department | | |

## Criteria for promotion to Associate professor 1

| | | Education | Research | Impact |
|---|---|---|---|---|
| Vision | Core | | | |
| | Profile specific | Contribute to and articulate an informed vision on the educational development of departmental program in relation to the university ambitions in education | Articulate an informed vision on own research program in the context of the departmental and university research strategy | Articulate an informed vision on the impact activities of the department |
| Execution | Core | Provide high quality education at all program levels (undegraduate, graduate and post-graduate) | Fulfill a core expertise role on a (inter)national level | Support and/or have activities to create societal impact based on own research |
| | Profile specific | Lead educational innovation and improvement within the department and in collaboration with university wide initiatives | Independently coordinate and execute own innovative and original research theme and (inter)national projects, resulting in internationally recognized output | Independently coordinate and execute impact activities based on own research |
| Recognition | Core | | | |
| | Profile specific | Have gained university wide leadership in education | Be an international authority in own field | Have (inter)national recognition for impact activities |
| Team & Leaderstip | Core | Lead departmental projects, working groups and committees<br>Engage team members in a broad definition of 'team science | | |

# Full professor

## Criteria for promotion to Full professor 2

| | | Education | Research | Impact |
|---|---|---|---|---|
| Vision | Core | | | |
| | Profile specific | Initiate and articulate an informed vision and contribute to the university wide educational vision and innovations | Define strategic challenges and focus for internationally leading and ground breaking research | Define strategic challenges and focus for impact activities of the department |
| Execution | Core | | | |
| | Profile specific | Lead educational innovation and improvement across the TU/e | Initiate and obtain substantial and sustainable funding for research resulting in internationally leading scientific output<br>Facilitate collaborations and act as program leader for large research programs | Initiate and obtain substantial and sustainable funding for impact activities<br>Lead a broad impact theme in the department/university |
| Recognition | Core | | | |
| | Profile specific | Be leading in knowledge or policy development on teaching and learning methods and teacher professionalization at the national and international level | Be a pioneer in own research theme, and have gained broad international recognition | Be an international authority related to impact program |
| Team & Leaderstip | Core | Be a mentor to junior academic staff in the department<br>Engage team members, and foster personal growth of team members tailored to the talents and ambitions of the team members<br>Have an informed vision and contributes to the stategic development of the department in the context of the strategic objectives of the university<br>Lead university, national or international projects/committees | | |

## Criteria for promotion to Full professor 1

| | | Education | Research | Impact |
|---|---|---|---|---|
| Vision | Core | | | |
| | Profile specific | Have an informed vision on the long-term strategic development of the educational vision and programs at the university | Define strategic challenges and focus for the broad research theme and initiate and cluster innovative research lines | Define strategic challenges and focus for the broad impact program |
| Execution | Core | | | |
| | Profile specific | Lead educational initiatives and programs at the (inter-)national level | Embed strategy for the broad research theme in the department/university in a coherent and consistent way | Lead a broad impact theme at the international level |
| Recognition | Core | | | |
| | Profile specific | Be an internationally leading authority in education, and shape teaching and learning strategies at the (inter-) national level | Review research lines and programs and (inter)national projects, and contribute to international strategy agenda on scientific and/or societal issues | Review (international) impact programs and contribute to the international strategy agenda on societal impact |
| Team & Leaderstip | Core | Have an informed vision on the strategic development of the department and university<br>Demonstrate leadership in fostering personal growth of team members<br>Lead strategic initiatives at the departmental, university and/or (inter-) national level | | |

# Examples of indicators

The scope of activities and indicators of success listed are broad, reflecting the variety of work at a multidisciplinary university. **These indicators are not exhaustive, and a subset will be used during assessment.** Indicators will always be discipline specific and a subset needs to be determined in close collaboration with the department.

| | Education | Research | Impact |
|---|---|---|---|
| **Vision** | Evidence of vision articulation | Evidence of vision articulation | Evidence of vision articulation |
| **Execution** | Funding for educational innovation/research programs<br>Teaching qualifications (UTQ, Advanced TQ, courses)<br>List of courses/ programs/ supervisions<br>Educational innovations<br>Publications<br>Peer evaluation<br>Reviews of teaching materials<br>Student evaluations (be aware that these may be biased and should be avoided in isolation in personnel decisions) | PhD degree<br>Project funding activities (granted and not granted)<br>Grants<br>Peer-reviewed publications<br>Datasets<br>Patents<br>Chairing conferences | Lectures<br>Books, Blogs, Articles, Reports<br>Exhibitions<br>Databases<br>Software<br>Application and use of patents<br>Organization of conferences<br>Courses for professional development<br>Active membership of a professional body<br>Policy advice<br>Consultancy<br>Spin offs |
| **Recognition** | Keynotes<br>Prizes<br>Membership/chair of education related committees | Member of program committees / juries<br>Reviewer of research-focused journal<br>Editor of international refereed journal<br>Keynotes / invited lectures<br>Invitations for articles and lectures<br>Prizes/awards<br>Guest professorships<br>Membership of scientific committees<br>Assessor of funding applications | Outreach (e.g. wide audience talks)<br>Presence in media<br>Membership/chair of policy committees |
| **Team & Leadership** | Evidence of the ability to reflect and act on feedback from students, colleagues and peers<br>360° feedback<br>Expert role in collaborative projects<br>Supervision experience<br>Successful supervision to completion of PhD candidates who have positively experienced the supervision<br>Membership of departmental or university wide committees<br>Membership of selection or assessment committees<br>Activities in schools to encourage students to apply to TU/e<br>Leadership role in department<br>Mentoring within department or TU/e | | |