



INTERNATIONAL RATING SYSTEM

2023

**FACT FILE**  
*Program Level*

*Environmental Sciences*  
**VNU University of Science**  
**Viet Nam**



# GREETINGS!

The Regional Rating System - **UNIVERSITY PERFORMANCE METRICS - UPM** has been developed to assess the responsiveness of programversities in the Fourth Industrial Revolution era through the five core indicators: *Entrepreneurial Spirit, Innovative Approaches, Digital Transformation, Student Mobility, and Ethical Values.*

At the program level, **UPM** includes a set of 44 indicators across 7 categories following two distinctive orientations: *research and application.* Evaluation results are presented in the form of an overall score for the whole program and a score for each category and each indicator, corresponding to a number of Stars ranging ranging from 1 – 5 and 5 Stars ELITE. Programs awarded with higher star numbers indicate exemplary reputation, the highest of which are at a competitive level of the Top 500 world majors (for 5-stars ELITE research-intensive programs), Top 1000 world majors (for 5-stars research-intensive programs) and Top 1000 Asian majors (for 5-stars research-intensive programs).

This rating system could bring significant benefits to different stakeholders. Higher-education institutions can use it as a benchmark tool for strategic development, as well as evidence-based branding for attracting students and potential partners.

Benchmarking results can be used as useful indicators for students to select study destinations and for employers to recruit qualified human resources. They can also be a reliable source of reference for national governments to make future policies or decisions on education.

**UPM** is extremely pleased to inform you the benchmarking results of your program. This assessment report presents the detailed rating results and the data that has been used as the basis for the rating score. Hopefully, this would provide you with useful information for your program self-benchmarking and strategic governance. In addition, you can use it for your media communication.

Thank you for taking part in **UPM**. If you need any further information about the results, please feel free to contact us at [upm@vnu.edu.vn](mailto:upm@vnu.edu.vn).



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# OVERALL RATING

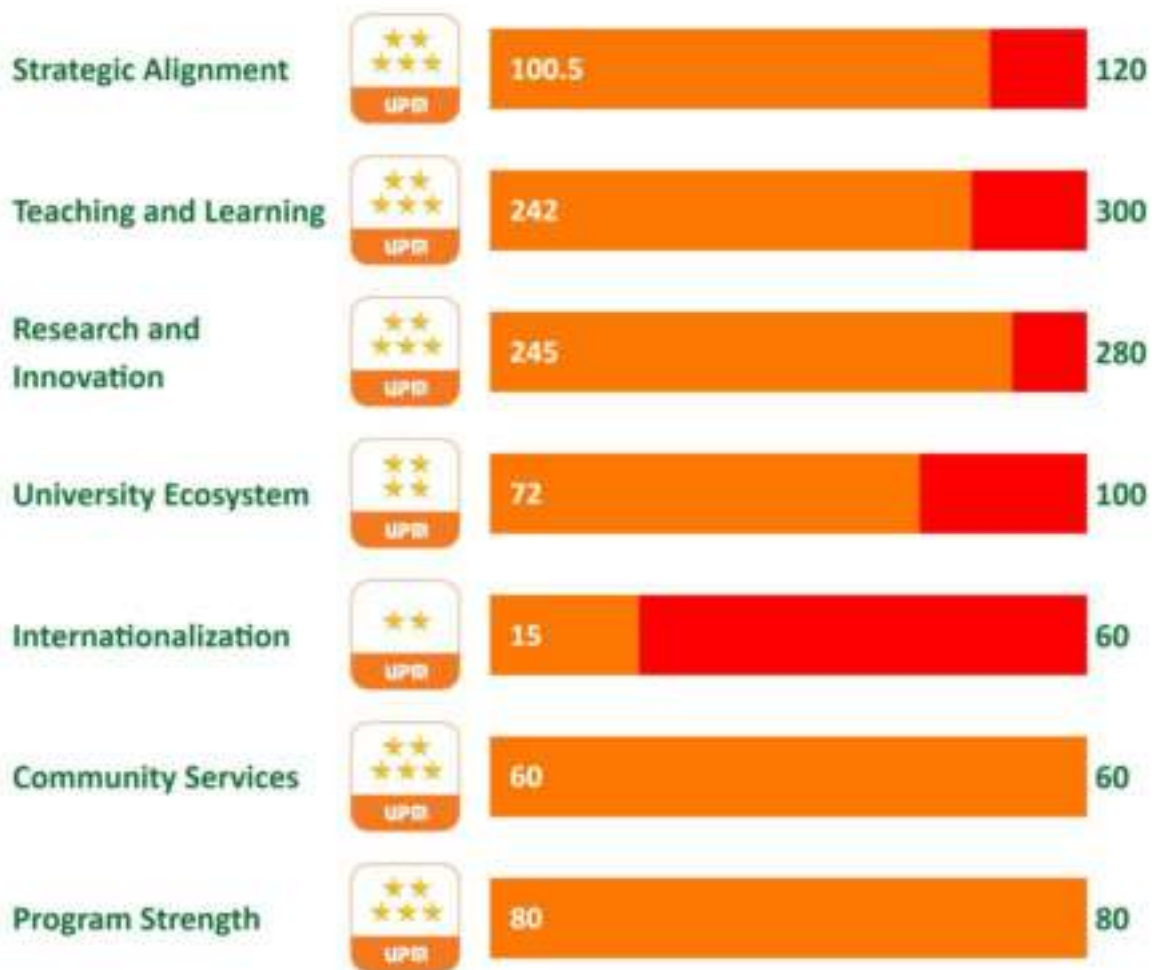


**Achieved score**  
814.5








**Maximum score**  
1,000



# CATEGORY RATING



# STRATEGIC ALIGNMENT

| No.        | Criterion & Indicators  | Weight     | Minimum rating level | Real data | Score        | Awarded stars   |
|------------|---|------------|----------------------|-----------|--------------|---|
| <b>1</b>   | <b>Strategic Alignment</b>  | <b>120</b> |                      |           | <b>100.5</b> |    |
| <b>1.1</b> | <b>Program Objectives and Education Learning Outcomes</b><br>The objectives and expected learning outcomes of the study program: - (i) reflect the vision and mission of the university, the faculty, and the department. - (ii) align the national qualification framework- (iii) orient the entrepreneurial and digital mindset.  | 20         | 0-6                  | 5         | 16.5         |    |
| <b>1.2</b> | <b>Policy alignment</b><br>The course area well aligned with national or regional political or economic priorities.   | 10         | 0-6                  | 6         | 10           |    |
| <b>1.3</b> | <b>4IR Responsiveness in Program's Structure and Contents</b><br>The program and all its courses are shown: (i) to be comprehensive, up-to-date, and made available and communicated to all stakeholders. (ii) The program contents assess the responsiveness of learning outcomes in the era of the Fourth Industrial Revolution (4IR) in both generic outcomes (in particular, the entrepreneurial and digital mindset and skills etc.) and subject specific outcomes (related to knowledge and skills of 4.0 technology and solutions).  | 20         | 0-6                  | 5         | 16.5         |  |
| <b>1.4</b> | <b>Correlative Education Styles and Assessment Methods</b><br>(i)- The educational philosophy is reflected in the teaching and learning activities. A variety of assessment methods are used and constructively aligned to achieving the expected learning outcomes and the teaching and learning objectives. (ii)- The education styles promote instilling in students a commitment for life-long learning (e.g., commitment to critical inquiry, information-processing skills, and a willingness to experiment with new ideas and practices). (iii) The teaching and learning activities inculcate in students a creative thought, design thinking, innovation, and an entrepreneurial mindset.  | 15         | 0-6                  | 5         | 12.5         |  |
| <b>1.5</b> | <b>Correlative Training Academic and Supporting Staffs</b><br>Correlative training and development activities are implemented to fulfil the identified needs of the academic and supporting staffs mentioned in indicator 1.4.  | 15         | 0-6                  | 4         | 10           |  |
| <b>1.6</b> | <b>Program iconic value to university</b><br>(i)- The program/subject is effectively positioned by highlighting in the university mission and strategy. It is an intrinsic part of the corporate planning and branding processes of the faculty/university brand. (ii)- Market performance and indicators may include but not limited to national and international competitive rankings, market size or share, awards, and stakeholders' satisfaction. (iii)- A wide range of stakeholders are engaged in any course portfolio development or review process. (iv)- Brand research studies are in place a number of years that include some level of tracking of course/research and university reputation, and are compared with other rival universities to gain a full picture of the value of courses offered. | 10         | 0-6                  | 5         | 8.5          |  |

|     |   |    |     |   |     |  |
|-----|---|----|-----|---|-----|--|
| 1.7 | <b>Launch promotion plan</b><br>(i)- The University approval process for new courses insists that there is a plan in place for the launch as a pre-requisite of support. (ii)- The effectiveness of the initial course launch is reviewed and lessons learned and applied. (iii)- There is a written plan and materials for the launch promotion for the program. | 10 | 0-6 | 4 | 6.5 |  |
| 1.8 | <b>Accreditation</b><br>Having got the results of program accreditation.  | 20 | 0-2 | 2 | 20  |  |



# TEACHING AND LEARNING

| No.        | Criterion & Indicators  | Weight     | Minimum rating level | Real data | Score      | Awarded stars  |
|------------|---|------------|----------------------|-----------|------------|--|
| <b>2</b>   | <b>Teaching and Learning</b>  | <b>300</b> |                      |           | <b>242</b> | <br>UPM   |
| <b>2.1</b> | <b>Quality of incoming students</b><br>The average score (or the admission percentage) of incoming freshmen in national university entrance exams/selections of the program in the last 3 consecutive years.  | 30         | 40-85                | 70        | 20         | <br>UPM   |
| <b>2.2</b> | <b>Size of academic faculty</b><br>The proportion (%) of academic staff (of the faculty/department, which is responsible to implementing the program) to the total number of students (of final year).  | 30         | 6-25                 | 23        | 27         | <br>UPM   |
| <b>2.3</b> | <b>Size of academic faculty quality</b><br>The proportion (%) of academic faculty staff with a Ph.D. degree in the total number of academic staff Assessment is done for the range from 70% with scaled scores down to 5%.  | 60         | 5-70                 | 88        | 60         | <br>UPM  |
| <b>2.4</b> | <b>Faculty reputation</b><br>The proportion (%) of lecturers bearing titles of professor to the total number of faculty staff.  | 30         | 2-20                 | 37        | 30         | <br>UPM |
| <b>2.5</b> | <b>Personalized learning</b><br>Bring into full play of the advantages of credit-based training, reaching the goal of individualization and/or personalization in training; encouraging cooperation among the faculties in the institution, with other universities and industries.   | 30         | 0-7                  | 4         | 17         | <br>UPM |
| <b>2.6</b> | <b>Digital Transformation</b><br>The three modes of online learning are facilitated: - Blended learning: 50% scaled down to 15% of courses available at the program that can be taken entirely through online learning. - Interactive learning: Frequency of average connection, interaction among faculty staff and students in the course group (twice/student/week), counted by specialized tools) - Personalized education: besides defined (direct and online) learning program, individual-oriented teaching environments are provided to implemented micro-nano certifications or modules and then to support the completion of the degree course through to graduation before the expected time.          | 30         | 0-7                  | 4         | 17         | <br>UPM |
| <b>2.7</b> | <b>Student Teaching and Research Assistantship Policies</b><br>The policies facilitate the student teaching and research assistantships are established, which award students become a teacher's assistant or research assistants. Teaching and research assistantships may be offered by the student's faculty advisor of academic departments. Research assistants vary by discipline and lab but include entrepreneurship and start-up activities. These policies are implemented effectively, national and ministerial-level prizes are attained; does not exceed level 5. Higher levels are achieved if projects are carried out, good results of start-up competition or international prizes are attained. | 20         | 0-7                  | 5         | 14.5       | <br>UPM |

|             |   |    |       |    |      |   |
|-------------|---|----|-------|----|------|---|
| <b>2.8</b>  | <b>The completion rate</b><br>The completion rate is the percentage of students from the initial enrolment cohort of the program that completed the degree course through to graduation within the expected time. | 20 | 50-95 | 70 | 9    |  |
| <b>2.9</b>  | <b>Student's satisfaction</b><br>90% of student satisfaction with scaled scores down to 50% of student satisfaction. Results conducted by the institution applied to all the education programs.                  | 15 | 50-90 | 90 | 15   |  |
| <b>2.10</b> | <b>Employers' satisfaction</b><br>90% of employer satisfaction with scaled scores down to 50% (following university surveys).   | 15 | 50-90 | 90 | 15   |  |
| <b>2.11</b> | <b>Student employability</b><br>The percentage of graduates have jobs after 12 months (90% with scaled scores down to 50%).   | 20 | 50-90 | 85 | 17.5 |  |














# RESEARCH AND INNOVATION

| No.        | Criterion & Indicators   | Weight     | Minimum rating level | Real data | Score      | Awarded stars   |
|------------|--|------------|----------------------|-----------|------------|---|
| <b>3</b>   | <b>Research and Innovation</b>   | <b>280</b> |                      |           | <b>245</b> |    |
| <b>3.1</b> | <b>Research productivity</b><br>The average number of papers indexed on Scopus database per academic staff in the recent 5 years (2016-2020).  | 120        | 0-3                  | 5.8       | 120        |    |
| <b>3.2</b> | <b>Research quality</b><br>The average number of citations until 2020 (per Scopus research papers) in the discipline in the last 5 years (2015-2019).  | 50         | 0-8                  | 11.3      | 50         |    |
| <b>3.3</b> | <b>Academic/scholarly books publication</b><br>The average number of academic/scholarly books, book-chapters, monographs and text-books in the discipline in the last 5 years.   | 20         | 0-2                  | 7         | 20         |  |
| <b>3.4</b> | <b>Nationally Recognized Intellectual property</b><br>The number of utility solutions, patents registered with national IP offices during the last 5 years (including copyrights for HEIs in Social Sciences).   | 15         | 0-1                  | 5         | 15         |  |
| <b>3.5</b> | <b>Globally Recognized Intellectual property</b><br>The number of patents registered with international IP offices during the last 5 years. Information on the website of Espacenet, <a href="https://worldwide.espacenet.com/patent/">https://worldwide.espacenet.com/patent/</a> as per the UPM analysis up till 2020. | 15         | 0-1                  | 0         | 0          | N/A   |
| <b>3.6</b> | <b>Funds for research and innovation</b><br>The average proportion (%) of revenue sponsored for research, R&D, innovation and start-up to the total tuition fee income of the considered program for past three fiscal year – including all public and/or private funds.   | 40         | 0-20                 | 21.5      | 40         |  |
| <b>3.7</b> | <b>Start-up and spin-off businesses</b><br>Start-up businesses, spin-off companies, social and cultural entrepreneurship developed from faculty staff and student research outcomes in the last 5 years.   | 20         | 0-1                  | 0         | 0          | N/A   |

# UNIVERSITY ECOSYSTEM

| No.        | Criterion & Indicators   | Weight     | Minimum rating level | Real data | Score     | Awarded stars   |
|------------|--|------------|----------------------|-----------|-----------|---|
| <b>4</b>   | <b>University Ecosystem</b>  | <b>100</b> |                      |           | <b>72</b> | <br><b>UPM</b>   |
| <b>4.1</b> | <b>Teaching, Research, R&amp;D and innovation facilities</b><br>Education programs have adequate laboratories and equipment for (i) practice, (ii) research, (iii) R&D and Innovation.   | 20         | 0-7                  | 5         | 14.5      | <br><b>UPM</b>   |
| <b>4.2</b> | <b>Creative co-working space and entrepreneurship supports</b><br>Space for innovation and start-up support is where faculty staff, students and start-up community share ideas, design, construct and develop new products.   | 20         | 0-7                  | 4         | 11.5      | <br><b>UPM</b>   |
| <b>4.3</b> | <b>Sports and Campus Facilities</b><br>Sports facilities, Cafeteria, Bookstore, Social room, Clubs, Health support services... are available for students and faculty to access.   | 20         | 0-7                  | 4         | 11.5      | <br><b>UPM</b>  |
| <b>4.4</b> | <b>Library and Online Learning Resources</b><br>The library is sufficiently equipped for digital transformation: (i)- Rich digital scholarly resources: The number of digitalized learning materials and copyrighted digital documents on the institution's website/repository per faculty member. Benchmarking point: 20 digitalized materials/faculty members or higher (results of Google Search: filetype:pdf site:domain name or other tools). (ii)- Learning resource access: Statistics of access frequency to digitalized learning resources, counted by specialized analytic tools of the library. Minimum benchmarking/satisfactory point: 5 times/student/week or higher; (iii) – Online outsourcing: The average number of online (recorded teaching, live teaching etc.) or/and MOOC courses of the total number of education programs with necessary links demonstrated in the institution portal, which support blended and/or personalized learning delivery models. Minimum benchmarking/satisfactory point: 5 e-courses. | 20         | 0-7                  | 5         | 14.5      | <br><b>UPM</b> |
| <b>4.5</b> | <b>Business and Industry Partners</b><br>The number of businesses, industries and organizations that have (i) collaboration in students' training and research, start-up projects; (ii) provide funding/grants for customized research or/and (iii) collaboration in R&D resulting in co-publications and shared IP license/industry co-patents.   | 20         | 0-2                  | 2         | 20        | <br><b>UPM</b> |

# INTERNATIONALIZATION

| No.        | Criterion & Indicators  | Weight    | Minimum rating level | Real data | Score     | Awarded stars   |
|------------|---|-----------|----------------------|-----------|-----------|---|
| <b>5</b>   | <b>Internationalization</b>   | <b>60</b> |                      |           | <b>15</b> |    |
| <b>5.1</b> | <b>International students</b><br>2% of students with foreign nationalities (to the total number of the students in the institution) studying in the programs (averaging for 3 years before the Covid pandemic, i.e. for 2017-2019).   | 20        | 0-2                  | 0         | 0         | N/A   |
| <b>5.2</b> | <b>International faculty</b><br>5% of academic staff with foreign nationalities (to the total number of faculty), who teach at least one subject/course or spent at least 3 consecutive months teaching or doing research at the institution (averaging for 3 years before the Covid pandemic, i.e. for 2017-2019). | 10        | 0-5                  | 0         | 0         | N/A   |
| <b>5.3</b> | <b>Student exchange</b><br>5% of students holding foreign citizenship (to the total number of student) take cultural exchanges course(s) or course(s) and do internship the credits of which can be transferred (averaging for 3 years before the Covid pandemic, i.e. for 2017-2019).                              | 10        | 0-5                  | 0.5       | 1         |   |
| <b>5.4</b> | <b>International cooperation in research</b><br>The proportion (%) of Scopus publications affiliated with international scientists (scaled up to 90%) in the period of 2016-2020 as per the UPM analysis.   | 20        | 0-90                 | 64        | 14        |  |



# COMMUNITY SERVICES

| No.        | Criterion & Indicators  | Weight    | Minimum rating level | Real data | Score     | Awarded stars   |
|------------|---|-----------|----------------------|-----------|-----------|---|
| <b>6</b>   | <b>Community Services</b>   | <b>60</b> |                      |           | <b>60</b> |    |
| <b>6.1</b> | <b>Life-long learning capacity enhancement</b><br>The number of short-term courses is designed and implemented to efforts to tailor education to meet the life-long learning requirements of the community in the region.   | 20        | 0-2                  | 2         | 20        |    |
| <b>6.2</b> | <b>Impact of Sustainable Development Research</b><br>Research impact of publications relate to the realization of the UN 17 sustainable development goals (SDGs), including: no poverty, zero hunger, good health and well-being, quality education, gender equality, clean water and sanitation; affordable and clean energy, decent work and economic growth; industry, innovation and infrastructure; reduced inequality; sustainable cities and communities; responsible consumption and production; climate action; life below water; life on land; peace and justice strong institutions. Research impact is determined via the Citescore metrics which counts the citations received in 2020 to papers published in 2016-2020. The number is divided by the number of documents indexed on Scopus published in 2016- 2020 as per the UPM analysis. | 20        | 0-10                 | 10        | 20        |   |
| <b>6.3</b> | <b>Social norm promotion</b><br>Community engagement activities (between the university and socio-political organizations) to: (i) promote the university impact on the community sustainable development (such as climate change, energy conservation program, water conservative program, recycle program, transportation policies) and (ii) foster harmoniously social norms (such as activities to pay back, support students in need, help the poor and people affected by natural disasters).   | 20        | 0-2                  | 2         | 20        |  |

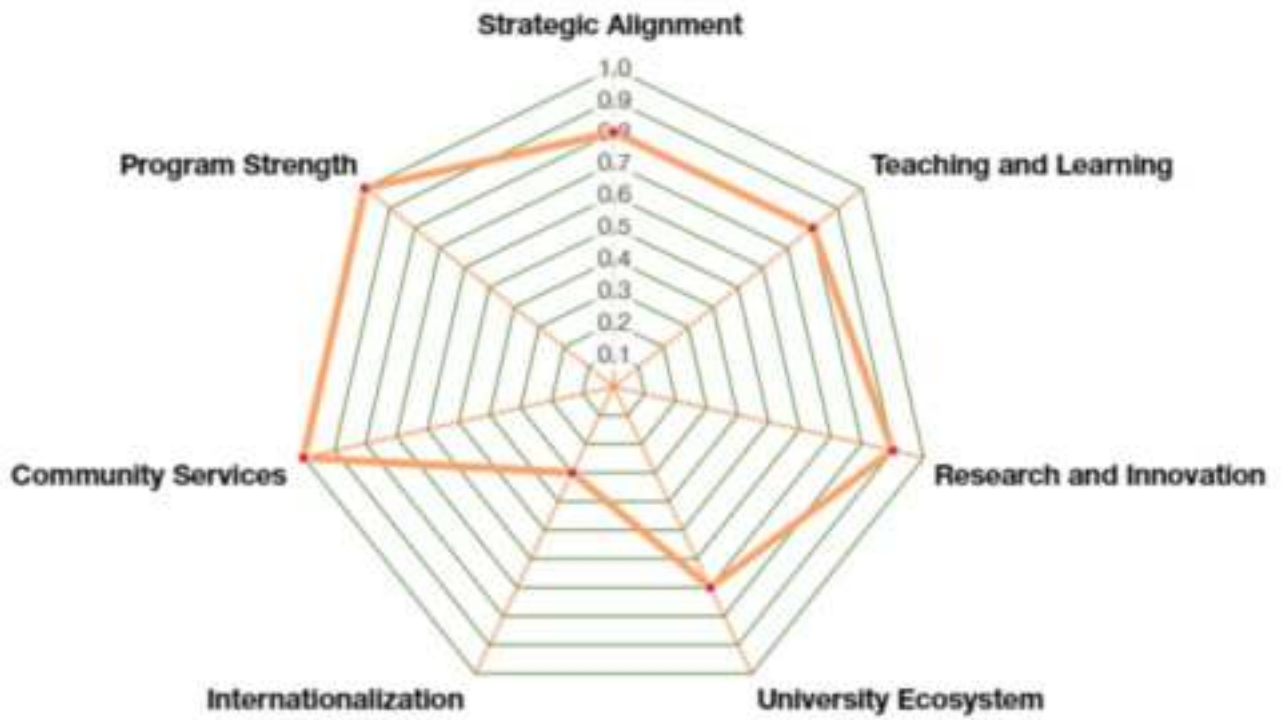


# PROGRAM STRENGTH

| No.        | Criterion & Indicators   | Weight    | Minimum rating level | Real data | Score     | Awarded stars  |
|------------|--|-----------|----------------------|-----------|-----------|--|
| <b>7</b>   | <b>Program Strength</b>  | <b>80</b> |                      |           | <b>80</b> | <br>UPM   |
| <b>7.1</b> | <b>Subject ranking (from QS, THE...)</b><br>Subject Ranking or Broad Subject Area Ranking by the international organization, e.g. QS, THE, ARWU etc.   | 50        | 0-4                  | 3         | 37.5      | <br>UPM   |
| <b>7.2</b> | <b>Successful Alumni</b><br>The number of successful alumna is recognized and honoured by the society through scientific and technological, managerial and leadership achievements and social impacts. | 30        | 0-6                  | 4         | 20        | <br>UPM   |
| <b>7.3</b> | <b>Student Academic Awards</b><br>The program students got international academic awards/prizes in the last 5 years.   | 30        | 0-1                  | 1         | 30        | <br>UPM  |
| <b>7.4</b> | <b>Faculty Academic Awards</b><br>The faculty staff got ministerial, national or international academic awards.  | 30        | 0-3                  | 1         | 10        | <br>UPM |
| <b>7.5</b> | <b>Realization of Sustainable Development Research</b><br>Research and R&D projects relate to the realization of the UN 17 SDGs are realized or transferred to the region in the last 10 years.        | 30        | 0-1                  | 0         | 0         | N/A  |
| <b>7.6</b> | <b>High impact research</b><br>The publication of the faculty staff reached published in the top 1% journals ranked by Scimago for the discipline in the last 5 years.                                 | 30        | 0-2                  | 0         | 0         | N/A  |



# GENERAL ANALYSIS



*Innovate To Transcend*

## ABOUT UPM

### WHAT

- UPM is the rating system, the development of which was funded by the Vietnam Ministry of Education and Training, to assess the responsiveness of universities in the 4th Industrial Revolution (4IR) era.

- At the program level, UPM evaluates university performance through 44 indicators across 7 categories, especially focusing on the 5 core characteristics of higher education 4.0: *Entrepreneurship, Innovation, Digital Transformation, Student Mobility and Ethical Values*. The evaluation follows two distinctive orientations: research and application. Evaluation results will be presented in the form of an overall score for the whole program, and a score for each category, corresponding to a number of Stars ranging from 1 – 5 and 5 Stars ELITE. Programs awarded with higher star numbers indicate exemplary reputation, the highest of which are at a competitive level of the Top 500 world majors (for 5-stars ELITE research-intensive universities), Top 1000 world universities (for 5-stars research-intensive universities) and Top 1000 Asian universities (for teaching focus universities).



### WHY

- Traditional university ranking, rating systems just focus on traditional academic and human resource performance, in particular, on world/region top HE institutions.

- In the era of 4IR, the world is changing rapidly with high uncertainty, broad connectivity and unlimited potentials.

- Universities have new roles and responsibilities:

- Employees ⇒ Employees and Entrepreneurs
- Knowledge Creation and Transfer ⇒ Knowledge Creation and Exploitation
- Academic Institution ⇒ Real World (Inside-out – Outside-in).

- Benchmarking and assessing the quality of a university should be performed in a holistic and innovative way. UPM can satisfy that requirement by reasonably integrating the main features of education accreditation with those of university ranking and rating while placing paramount importance on the 5 core characteristics of HE 4.0.



### WHO

- As a data and analysis center, UPM facilitates benchmarking and provides consultancy for the national HE system, as well as HE institutions and programs in the region.

#### BENEFICIARIES:

- HE institutions can use UPM criteria to benchmark themselves or as a tool for strategic governance and partner development.

- Students can be informed by UPM benchmarking results to pursue their study interests and choose their study destinations.

- Employers can recruit qualified human resources and make use of S&T achievements indicated by UPM benchmarking results.

- Governments can use UPM benchmarking results as the basis for policy and decision making.

### HOW

- Visit the site <http://upm.vn> for full introduction and methodology; download the UPM dataset template. Fill in the dataset and submit the self-reported data for the institution as a whole to UPM at [upm@vnu.edu.vn](mailto:upm@vnu.edu.vn).

- UPM team and their advisory committee will review and approve the data, then decide the score. A fact file is available for participant universities before official launching. All data are secured by the institution as well as UPM.

- After assessing and awarding the stars, UPM can publish the institution's profile and the results of the overall star and the score for each category on its website.

- The detailed results of all indicators can also be publicized by the institution. The institutions can provide third parties with the details all the data released from a UPM dataset either in printed or digital forms.