

IMT Grand Challenges - Lista de projetos "Grandes Desafios do IMT"

16/08/2023 | Joseph

Area codes->

C = Safety
D = Joy of Living

Project #	NAE Grand Challenge Main Area	Main Area code	Codes for Main and secondary areas	GCSP-IMT Related Project Theme	Coordinating Program/Entity.	Sponsors (IMT, Industries, other College or Universities, government research-funding institutions,	Research Fund status	Number of existing activities suitable for GCSP-IMT students	Readiness status for GCSP-IMT involvement	Mentores	Last Status Update (by Program Coordinator)	Launched (Yr)	Are there students currently working on this project?
2	Safety	C	A, B, C, D	River and Flood alert Monitoring System	CP-IMT, Mechanical Engineering, Electronics Engineering.	São Caetano do Sul Prefeitura/ USCS / Thales/ IMT	granted	large	ready	See the Mentors x Projects table	oct/2020, Prof. Sérgio; Prof. Angelo	2020	No
5	Sustainability	A	A	Renewable Energy - Wind Energy (rotor aerodynamics, efficiency, Wind Turbine Noise and WTN legislation, siting, simulation).	Mechanical Engineering	IMT, EPUSP	N/N	enough	ready	See the Mentors x Projects table	Joseph	oct/2020/Prof. Susana	Yes
6	Sustainability	A	A	Renewable Energy - Ocean Wave energy	Mechanical Engineering	IMT	unknown	some	short-term	See the Mentors x Projects table	Jun/2022/Prof. João Brasil	2021	No
10	Sustainability	A	A, B	Food processing - Saving coconut residues from the coconut water bottling process (this theme is not available for new students; just ongoing projects. Please see Project # for a good alternative).	Food Engineering	Industry partner	granted	large	ready	See the Mentors x Projects table	Tema retirado em dez/22 pela Profa. Eliana	2020	Yes
11	Health	B	A, B, C, D	Waste treatment	Chemical Engineering	FAPESP ; CNPq	granted	large	ready	See the Mentors x Projects table	oct/20 Prof. Luciano	2020	Yes
12	Joy of Living	D	A, C, D	Chemical and Biochemical Processes - Microwave applications	Chemical Engineering	IMT, FAPESP	granted	ready	ready	See the Mentors x Projects table	oct/20 Prof. Luciano	2020	Yes
13	Sustainability	A	A	Smart cities: Data science applied to flood prediction and people urban mobility	Civil Engineering, Computer Engineering	IMT	unknown	enough	ready	See the Mentors x Projects table	oct/20, Professora Cássia de Assis; Prof. Angelo	2020	Yes
14	Safety	C	C, D	Construction of Building Information Modeling (BIM)	Civil Engineering	internal, with external industry and public entities awards received in the last few years	all hardware and software infrastructure in place	large	ready	See the Mentors x Projects table	oct/20, Professora Cássia de Assis	2020	Yes
15	Safety	C	C	Information Security / Cyber Security	Computer Engineering	IMT, FAPESP	granted	enough	ready	See the Mentors x Projects table	Oct/20, Prof. Angelo	2020	Yes
16	Sustainability	A	A, B, C, D	Smart Campus - IOT	CP-IMT, Electrical Engineering	IMT	granted	large	ready	See the Mentors x Projects table	oct/2020, Prof. Sérgio	2020	No

17	Sustainability	A	A, B, D	Smart Vegetable Garden	CP-IMT, Electronics Engineering, Chemical Engineering; Computer Engineering.	IMT	granted	large	ready	See the Mentors x Projects table	jun/2023, Prof. Sérgio; Prof. Angelo	2020	No
20	Sustainability	A	A, B, C, D	Mobility with FuelCell vehicles	CP-IMT, Electronics Engineering, Electrical Engineering.	Equatorial/AVL/Daimon	partially granted	large	ready	See the Mentors x Projects table	oct/2020, Prof. Sérgio	2020	No
22	Joy of Living	D	A, B, C, D	Hardware Platform for Weblab Applications - Education	CP-IMT, Mechanical Engineering, Electronics Engineering, Industrial Engineering (Engenharia de Produção), Control and Automation Engineering.	IMT	granted	large	ready	See the Mentors x Projects table	oct/2020, Prof. Sérgio	2020	Yes
24	Safety	C	C	Electrical Instalations	Electrical Engineering	IMT	N/N	large	ready	See the Mentors x Projects table	Oct/2020; Prof. Edval	2020	Yes
25	Sustainability	A	A	Renewable energy - Solar Energy	Electrical Engineering	IMT	granted	enough	ready	See the Mentors x Projects table	oct/2020, Prof. Sérgio	2020	No
26	Safety	C	C	Internet of things (IOT), including Smart Campus, Smart Parking and Smart Cities	Electrical Engineering, Computer Engineering and Industrial Engineering (Engenharia de Produção)	IMT, CP-IMT	granted	large	ready	See the Mentors x Projects table	oct/2020, Prof. Sérgio; Prof. Angelo	2020	No
27	Safety	C	A, B, C, D	Technological Applications in Precision Agriculture, biomedical engineering and process control.	Electrical Engineering, Computer Engineering and Industrial Engineering (Engenharia de Produção).	IMT	all hardware and software infrastructure in place	large	ready	See the Mentors x Projects table	oct/2020, Prof. Sérgio	2020	No
28	Joy of Living	D	D	Development of Scientific Instruments and Software for Earth-based, atmospheric or space-flight systems.	Electronics Engineering, Computer Engineering, Mechanical Engineering	IMT, FAPESP, GMTO, ESA	granted	large	ready	See the Mentors x Projects table	oct/2020, Prof. Sérgio	2020	Yes
29	Safety	C	C	Chemical and Biochemical Processes - Microwave applications	Electrical Engineering	IMT, FAPESP	granted	large	ready	See the Mentors x Projects table	oct/2020, Prof. Sérgio	2021	No
31	Sustainability	A	A, B	Recycling processes: polyester-fiberglass composites; PET for 3D printing; printed circuit-boards for extracting metallic nanomaterials	Mechanical Engineering	IMT, Fapesp, USP	granted	large	ready	See the Mentors x Projects table	oct/20, Profa. Susana	2020	No
32	Sustainability	A	A,C	Development of Superhydrofobic materials for safety and cleaning-water use reduction	Mechanical Engineering	IMT	granted	large	ready	See the Mentors x Projects table	oct/20, Profa. Susana	2020	Yes
33	Sustainability	A	A, B	Environmental Impact of A/C and Refrigeration systems gases	Mechanical Engineering	IMT, EPUSP, Danfoss	granted	large	ready	See the Mentors x Projects table	oct/20, Profa. Susana	2020	No
34	Sustainability	A	A	Energy Consumption from A/C and Refrigeration systems	Mechanical Engineering	IMT, EPUSP, Daikin	granted	large	ready	See the Mentors x Projects table	oct/20, Profa. Susana	2020	No

35	Sustainability	A	A	Renewable energy - Hydropower project infrastructure analysis and environmental impact mitigation	Civil Engineering, Mechanical Engineering, Computer Engineering	IMT	unknown	large	short-term	See the Mentors x Projects table	Oct/2020/Prof. Susana	2021	No
37	Sustainability	A	A	Reutilization of solid waste from construction sites	Civil Engineering	IMT	unknown	large	short-term	See the Mentors x Projects table	Prof. Wanderson	2023	Yes
39	Sustainability	A	A, D	Renewable Energy - Water-heating through solar energy	Mechanical Engineering	IMT	unknown	large	short-term	See the Mentors x Projects table	oct/20, Profa. Susana	2020	No
40	Sustainability	A	A, B	Environmental Impact of GHG (Green-House Gas) Emissions	Mechanical Engineering	IMT	N/N	large	ready	See the Mentors x Projects table	oct/20, Profa. Susana	2021	Yes
42	Sustainability	A	A, D	Civil Engineering Materials	Civil Engineering	IMT	Granted	large	ready	See the Mentors x Projects table	oct/20, Profa. Cássia	2020	Yes
43	Safety	C	A, C	Modeling and Methods on Structural Analysis	Civil Engineering	IMT, Ecorodovias	Granted	large	ready	See the Mentors x Projects table	oct/20, Profa. Cássia	2021	Yes
44	Safety	C	A, C, D	Manufacturing Automation and Intelligent Productive Systems: Integration of technologies for industry 4.0.	CP-IMT, Mechanical Engineering, Electronics Engineering, Industrial Engineering (Engenharia de Produção), Control and Automation Engineering.	IMT	Granted	large	ready	See the Mentors x Projects table	Oct/20, Prof. Madani	2020	Yes
45	Safety	C	C, D	Smart factory: Integration, connection and data exchange in manufacturing technologies for automation and management of the industrial environment.	CP-IMT, Control and Automation Engineering, Industrial Engineering (Engenharia de Produção)	IMT, Mitsubishi Electric Brazil	Granted	large	ready	See the Mentors x Projects table	Oct/20, Prof. Madani	2020	Yes
46	Safety	C	C, D	Autonomous Mobile Robots Development	Control and Automation Engineering, Computer Engineering	IMT	granted	large	ready	See the Mentors x Projects table	Oct/20, Prof. Madani	2020	No
47	Safety	C	B, C, D	Service Bot: Development of service robots for human interaction.	Electronics Engineering, Control and Automation Engineering, Computer Engineering	IMT	Granted	large	ready	See the Mentors x Projects table	Oct/20, Prof. Madani	2021	No
48	Safety	C	A, B, C, D	Autonomous Shuttle: Development of an electric autonomous vehicle for last mile logistics.	Control and Automation Engineering, Research Group on Intelligent Mechatronic Systems and Robotics	IMT, Translift sistemas de movimentação e armazenamento Ltda, SCANIA	Granted	large	ready	See the Mentors x Projects table	June/21, Prof. Madani	2020	No
49	Sustainability	A	A, D	Design and crafts: Natural fiber packaging. Social design in collaboration with craftsmanship community	Design Program	IMT	Ongoing project, with financial support from IMT	enough	ready	See the Mentors x Projects table	oct/22, Claudia Facca	2021	Yes

50	Sustainability	A	A,D	Carbon Dioxide Capture and Storage Systems	Mechanical Engineering	IMT	granted	some	ready	See the Mentors x Projects table	Ago/23 Prof. João Brasil	2022	Yes
51	Health	B	B	Human organ transport container	CP-IMT / Electrical Engineering	IMT, FINEP	granted	enough	ready	See the Mentors x Projects table	Aug/22; Prof. Sérgio	2022	Yes
52	Sustainability	A	A, C, D	Animal food level monitoring and delivery logistics	CP-IMT / Electrical Engineering	IMT	granted	enough	ready	See the Mentors x Projects table	Aug/22; Prof. Sérgio	2022	No
53	Sustainability	A	A,D	Jaguar SAT	CP-IMT / Electrical Engineering	IMT	granted	enough	ready	See the Mentors x Projects table	Aug/22; Prof. Sérgio	2022	No
54	Sustainability	A	A, D	Integrated biosystems for effluent treatment	Industrial Engineering (Engenharia de Produção)	IMT	N/N	enough	ready	See the Mentors x Projects table	Aug/22; Prof. David/Prof. Afonso	2022	No
55	Sustainability	A	A	Circular Economy	Industrial Engineering (Engenharia de Produção)	IMT	N/N	enough	ready	See the Mentors x Projects table	Aug/22; Prof. David/Prof. Afonso	2022	No
56	Sustainability	A	A	Climate Risk Impact Assessment	Industrial Engineering (Engenharia de Produção)	IMT	N/N	enough	ready	See the Mentors x Projects table	Aug/22; Prof. David/Prof. Afonso	2022	No
57	Sustainability	A	A	Modeling and analysis of reverse logistics	Industrial Engineering (Engenharia de Produção)	IMT	N/N	enough	ready	See the Mentors x Projects table	Aug/22; Prof. David/Prof. Afonso	2022	Yes
58	Health	B	B, D	Identifying challenges in humanitarian logistics	Industrial Engineering (Engenharia de Produção)	IMT	N/N	enough	ready	See the Mentors x Projects table	Aug/22; Prof. David/Prof. Afonso	2022	Yes
59	Sustainability	A	A, C	Sustainability strategies for city logistics and Supply Chain Logistics	Industrial Engineering (Engenharia de Produção)	IMT	N/N	enough	ready	See the Mentors x Projects table	Aug/22; Prof. David/Prof. Afonso	2022	Yes
60	Sustainability	A	A	Circular Economy for Packaging materials	Industrial Engineering (Engenharia de Produção)	IMT	N/N	enough	ready	See the Mentors x Projects table	Aug/22; Prof. David/Prof. Afonso	2022	No
61	Sustainability	A	A	The role of Reverse Logistic in a National Solid Waste Program.	Industrial Engineering (Engenharia de Produção)	IMT	N/N	enough	ready	See the Mentors x Projects table	Aug/22; Prof. David/Prof. Afonso	2022	No

62	Sustainability	A	A	Food Waste Reduction: From production to consumption throughout the value chain.	Industrial Engineering (Engenharia de Produção)	IMT	N/N	enough	ready	See the Mentors x Projects table	Aug/22; Prof. David/Prof. Afonso	2022	No
63	Sustainability	A	A	To support SMEs (Small and medium-sized enterprises) in developing more sustainable production's procedures.	Industrial Engineering (Engenharia de Produção)	IMT	N/N	enough	ready	See the Mentors x Projects table	Aug/22; Prof. David/Prof. Afonso	2022	No
64	Sustainability	A	A	Tubo de Ranque-Hilsch. Estudo da eficiência via impressão 3D/teste e simulação CFD.	Mechanical Engineering	IMT	N/N	enough	ready	See the Mentors x Projects table	Aug/22, Joseph	2022	No
65	Joy of Living	D	D	Human-Powered Aircraft: designing an aircraft to fly exclusively relying on human power.	Mechanical Engineering	IMT, Flyer Indústria Aeronáutica, Braskem.	N/N	enough	ready	See the Mentors x Projects table	Aug/22, Joseph	2022	No
66	Health	B	B	Fighting Dengue and Chikungunya Fevers: adapting drones for identifying water puddles and taking preventive measures.	Mechanical Engineering, Control and Automation Engineering, Computer Engineering.	IMT	N/N	enough	ready	See the Mentors x Projects table	Aug/22, Joseph	2022	No
67	Joy of Living	D	D	Improving the existing system for collecting atmospheric samples aboard the IMT Stratospheric Balloon.	Mechanical Engineering	IMT	N/N	enough	ready	See the Mentors x Projects table	Aug/22, Joseph	2022	No
68	Joy of Living	D	D	Numerical Modelling of the heat transfer on a Cubsat in LEO (Low-Earth Orbit).	Mechanical Engineering	IMT	N/N	enough	ready	See the Mentors x Projects table	Aug/22, Joseph	2022	No
69	Sustainability	A	A	Developing a termo-acoustic insulating material from sugarcane or coconut fiber rejects.	Mechanical Engineering	IMT	N/N	enough	ready	See the Mentors x Projects table	Aug/22, Joseph	2022	No
70	Joy of Living	D	D	Responsive Design and Internet of Things: graphical experiments considering the user experience in IoT.	Design Program	IMT	Ongoing project, with financial support from IMT	enough	ready	See the Mentors x Projects table	oct/22, Claudia Facca	2022	Yes
71	Sustainability	A	A	Biodesign and biomimetics applied to research and product development	Design Program	IMT	Ongoing project, with financial support from IMT	enough	ready	See the Mentors x Projects table	oct/22, Claudia Facca	2022	Yes
72	Joy of Living	D	D	Design and user experience in digital interfaces (UX/UI)	Design Program	IMT	N/N	some	ready	See the Mentors x Projects table	Dez/22, Claudia Facca	2022	Yes
73	Sustainability	A	A	Development of a special mesh cutting kit to release whales from fishing mesh	Mechanical Engineering	IMT and Jubati NGO	Ongoing project, with financial support from IMT	enough	ready	Éd Claudio Bordinassi	Dec/22, ECB	2022	No

74	Sustainability	A	A, B	Obtenção e aplicação de farinhas obtidas a partir de subprodutos da indústria de café e vinho	Food Engineering	IMT	granted	enough	ready	See the Mentors x Projects table	Dez/22, Profa. Eliana	2023	Yes
75	Sustainability	A	A	Renewable Energy - Improving Efficiency in the use of Sugarcane-Ethanol in Internal Combustion Engines via Ultra-high pressure direct injection	Mechanical Engineering	IMT, FUNDEP, Stellantis, AVL, GM, Marelli, Other Universities	granted	enough	ready	See the Mentors x Projects table	Jul/2023/Prof. Clayton	2021	No
76	Sustainability	A	A	Renewable Energy - Electrical power generation via solid oxide fuel cells coupled to ethanol fuel reformers	Mechanical Engineering	IMT, SENAI, REPSOL	under submission	enough	in approval process	See the Mentors x Projects table	Jul/2023/Prof. Clayton	2023 (to be launched)	No
77	Sustainability	A	A	Renewable Energy - Caracterization of ethanol sprays produced by ultra-high pressure diesel systems	Mechanical Engineering	IMT, EPUSP	unknown	enough	ready	Rafael Todaro	Ago/2023 / Prof. João Brasil	2023	No
78	Joy of Living	D	D	Competence-based approaches applied in a personalized learning context	Mechanical Engineering	IMT	unknown	some	ready	Rafael Todaro	Ago/2023 / Prof. João Brasil	2023	No
79	Joy of Living	D	D	Study of blood flow in biological structures using numerical simulation (Blood flow in aneurysms, strokes, clot formation)	Mechanical Engineering	IMT	N/N	some	ready	João Brasil	ago/23	2020	No
80	Safety	C	A, B	International Relations and International Business Management: Conflict Observatory	International Relationship	IMT	unknown	enough	ready	Rodrigo Fernando Gallo	Ago/2023 / Prof. Ricarro Balistiero	2023	No

FAPESP	São Paulo State Research-Support Foundation
GMTO	Giant Magellan Telescope Office (Australian, Brazilian, Korean and American Joint-Venture)
ESA	European Space Agency
IMT	The IMT non-profit parent organization grant funds twice annually for internal and external (non-IMT students) approved researches.
CP-IMT	IMT Reseach Center
PSA	Peugeot-Citroen Automotive Group
EPUSP	São Paulo State Polytechnic School of Engineering
Danfoss	Danfoss HVAC Corporation
Daikin	Daikin HVAC Corporation
N/N	Specific funding Not Necessary. Activities developed under the budget of the regular disciplines.
Daimon	An energy sector Corporation
Celesc	A Santa Catarina State Hoding - Electricity Generation and Distribution Services.
Sulgipe	A Sergipe State Hoding - Electricity Generation and Distribution Services.
Thales	Na Aerospace, Defense and Security French Company
Cognitivos	A Sustainability Services Company
Gemalto	A World Leader in Digital Security
USCS	São Caetano City University