SATS SCHOOL OF APPLIED TECHNICAL SCIENCES

GJU
الجامعة الألمانية الأردنية
German Jordanian University

Network Meeting
Mechanical and Maintenance Engineering

Presenter: Dr. Sameer Al-Dahidi

sameer.aldahidi@gju.edu.jo

VIRTUAL MEETING

24 JUNE 2021

SATS Programs

- Mechatronics Engineering Department (BSc)
- Mechanical & Maintenance Engineering (MECH) (BSc)
- Industrial Engineering Department (BSc)
- Engineering Management (MSc)

Outline

- MECH Overview, Faculty Directory, and Research Interests
- MECH Students/Faculty/Staff Exchange
- MECH Dual Studies Track
- Online-Teaching and E-Learning Tools
- MECH Curricula Development
- Feedback from GJU Students
- Open Discussion

Outline

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- Online-Teaching and E-Learning Tools
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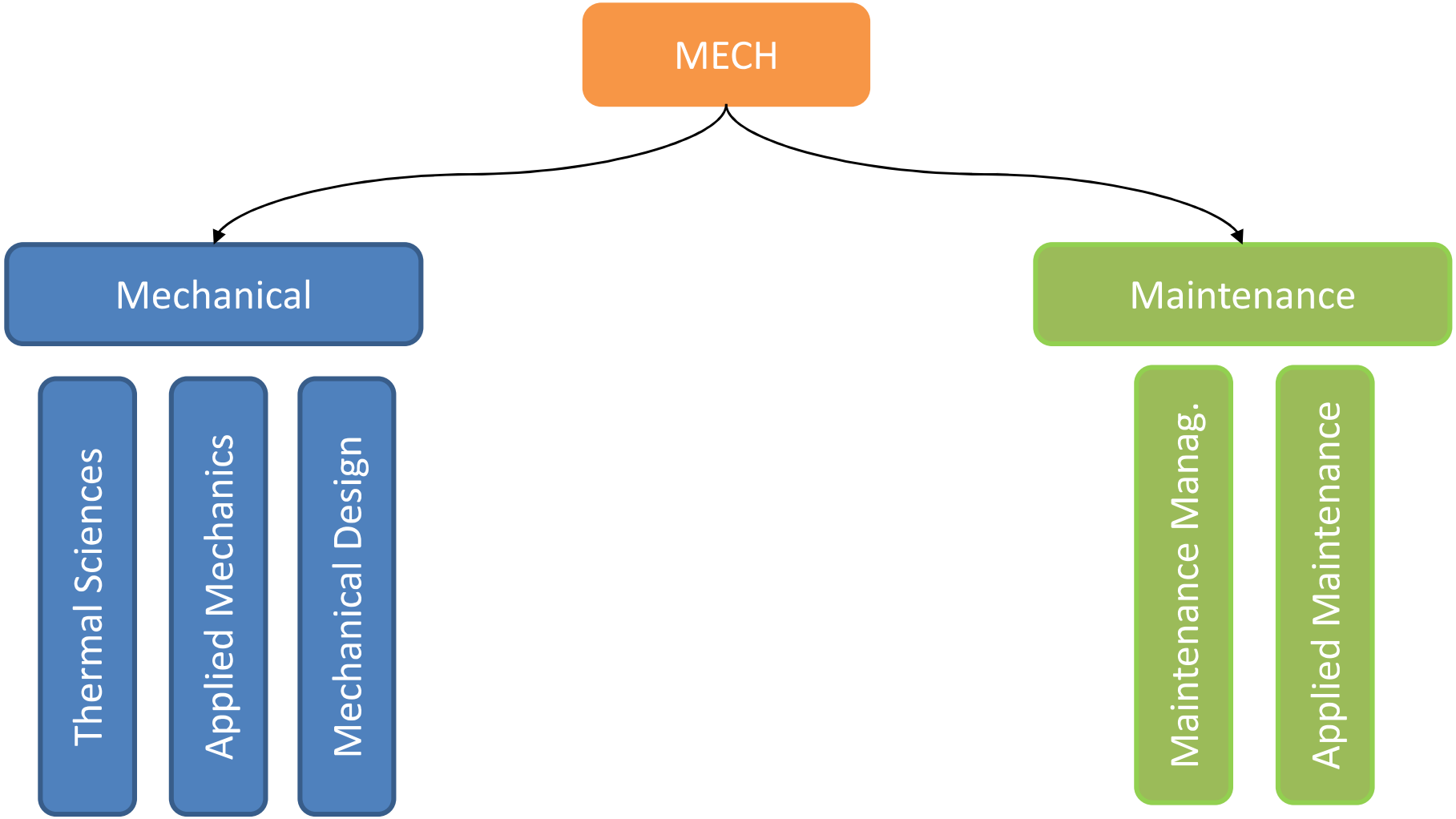
MECH Overview

- The academic program of the Department of Mechanical and Maintenance Engineering (MECH) is one of the most outstanding engineering programs in the Hashemite Kingdom of Jordan;

- The only program that grants a B.Sc. degree in Mechanical and Maintenance Engineering;

- Its content is the integration of **Mechanical Engineering** and **Maintenance Engineering and Management** with equal focus on the **Theoretical** and **Practical** aspects of the two majors;

MECH Overview



MECH Overview

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- The only program that grants a B.Sc. degree in Mechanical and Maintenance Engineering;

- Its content is the integration of **Mechanical Engineering** and **Maintenance Engineering and Management** with equal focus on the **Theoretical** and **Practical** aspects of the two majors;

- Graduates of MECH program will have the appropriate theoretical and practical background that qualifies them to work in a wide range of engineering fields.

MECH Faculty Directory

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Name	Rank	University	Field of research
Prof. Ziyad Masoud	Prof.	Virginia Tech	Applied Mechanics
Prof. Ismael Al-Hinti	Prof.	Queen's University Belfast	Thermal Sci. & Fluids/Renewable Energy
Prof. Wael Al-Kouz	Prof.	Worcester Polytechnic Institute	Thermal Sci. & Fluids/Renewable Energy
Dr. Mohammad Nazzal	Assoc.	University of Kentucky	Solid Mechanics, FEM, Advanced Materials Processing
Dr. Aiman Al-Share	Assoc.	University of Minnesota-Twin cities	Renewable Energy/Thermal Sci. & Fluids
Dr. Rafat Al-Waked	Assoc.	New South Wales	Thermal Sci. & Fluids
Dr. Ma'en S. Sari	Assoc.	New Mexico State	Applied Mechanics
Dr. Bashar K. Hammad	Assoc.	Virginia Tech	Thermal Sci./Renewable Energy
Dr. Ala L. Hijazi	Assoc.	Wichita State	Applied Mechanics
Dr. Ahmad Al-Muhtady	Assoc.	Michigan	Thermal Sci./ Maintenance Management
Dr. Sameer Al-Dahidi	Assoc.	Politecnico di Milano	Artificial Intelligence, Maintenance Management, Renewable Energy
Dr. Wahib Owhaib	Assist.	KTH	Thermal Sci.

MECH Faculty Directory

3 Professors

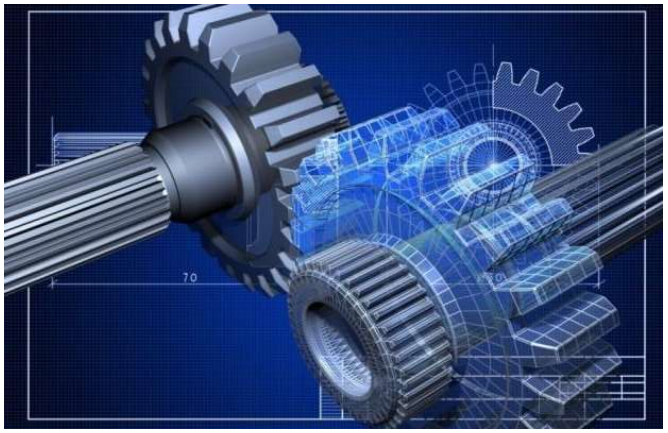
8 Associate Professors

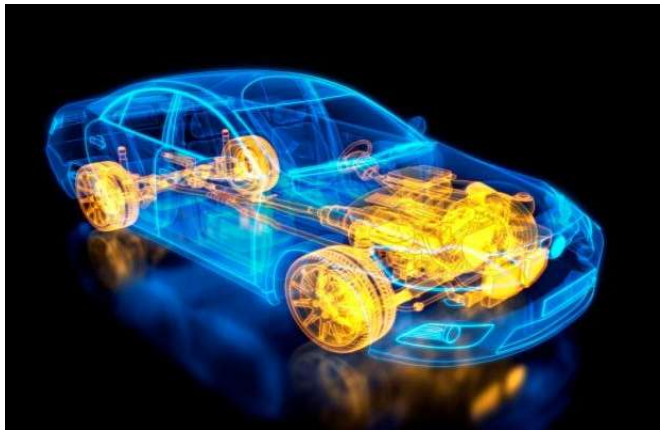
1 Assistant Professor

1 Instructor

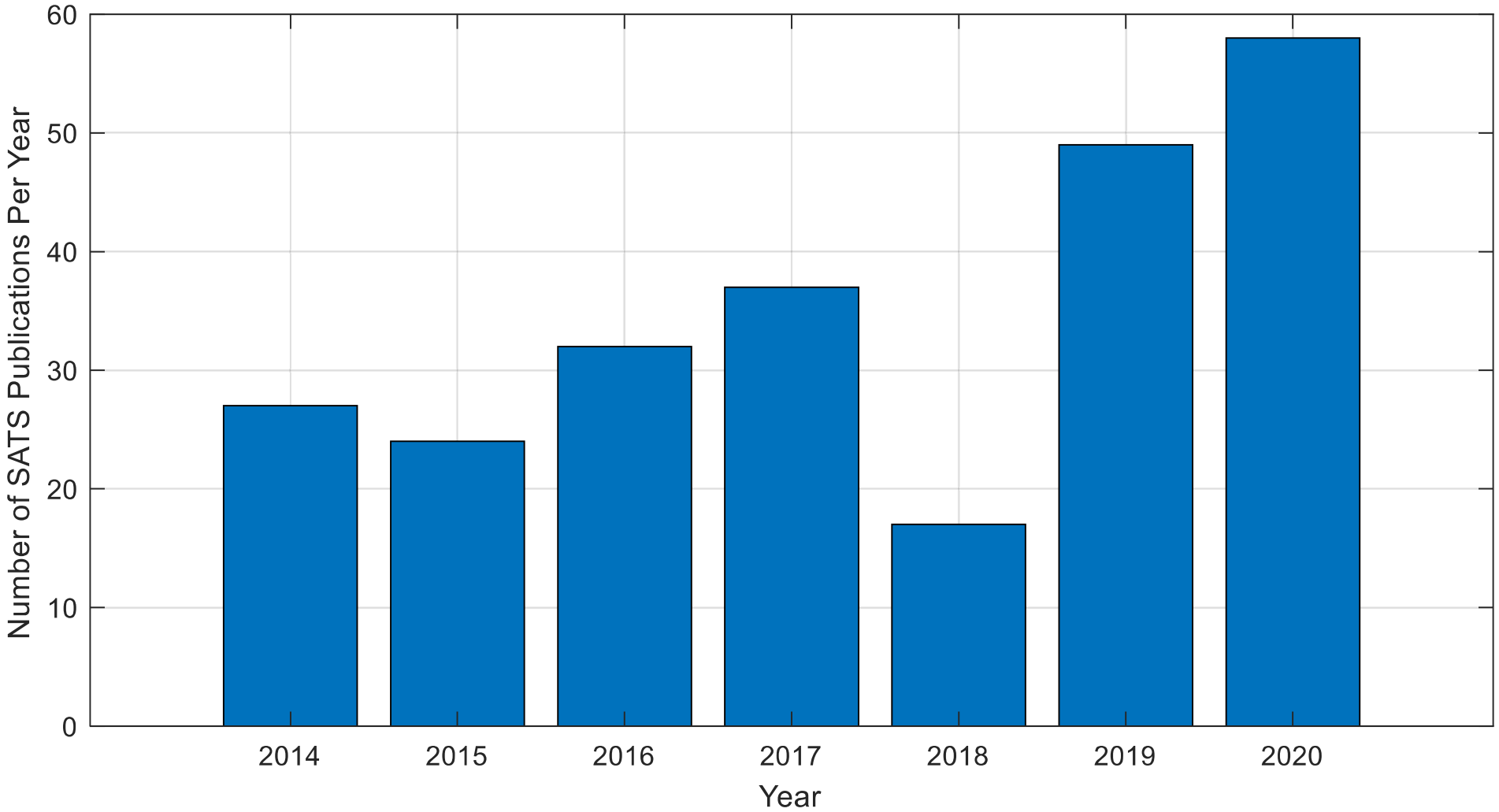
4 Research and Teaching Assistants

- *Applied Mechanics*
- *Thermal Science and Fluids*
- *Maintenance Management*
- *Renewable Energy*





SATS: Figures and Facts



MECH Research Interests

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German Jordanian University

Fields - Partner Universities

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Partner University 1: RWTH Aachen	
Faculty Representative(s)	Research Field(s)

Partner University 2: HS Aalen	
Faculty Representative(s)	Research Field(s)

Partner University 3: DHBW Karlsruhe	
Faculty Representative(s)	Research Field(s)

Partner University 4: DHBW Stuttgart	
Faculty Representative(s)	Research Field(s)

https://docs.google.com/spreadsheets/d/13Vd2TZostQxm9Q8TTuHSPBNdd9IOJs1CC1WYzPJQX6o/edit?usp=sharing

SATS Laboratories

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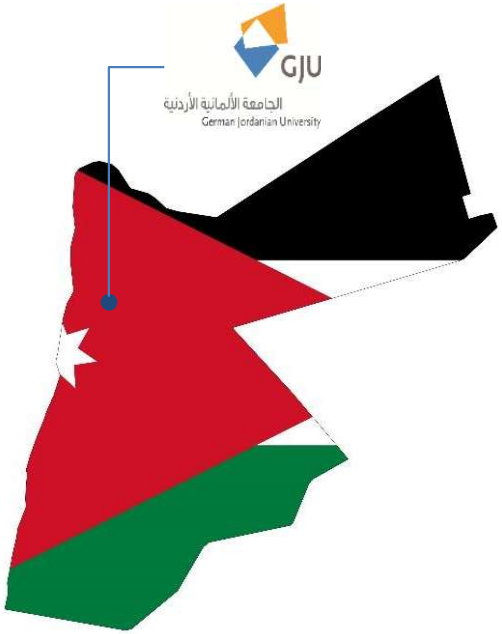
German Jordanian University

- Manufacturing Process
- Industrial Automation
- Ergonomics
- Operation Research
- Materials Science
- DE simulation
- Work Measurements
- Hydraulics and Pneumatics
- Automatic Control Lab
- AutoCAD
- Mechatronics Systems Design
- Sensors and Actuators
- Instrumentation and Measurements
- PLC
- Thermo-fluid
- Machine Design
- Applied Thermal A & B

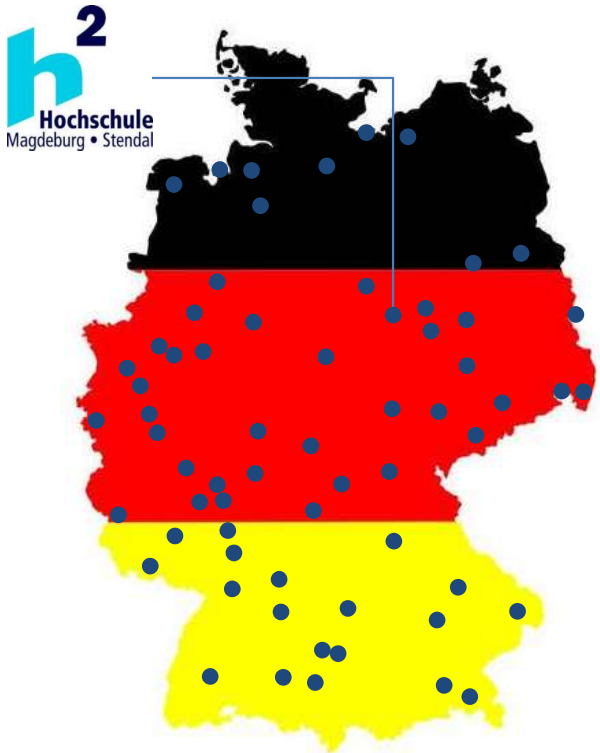
MECH Department



Students Exchange

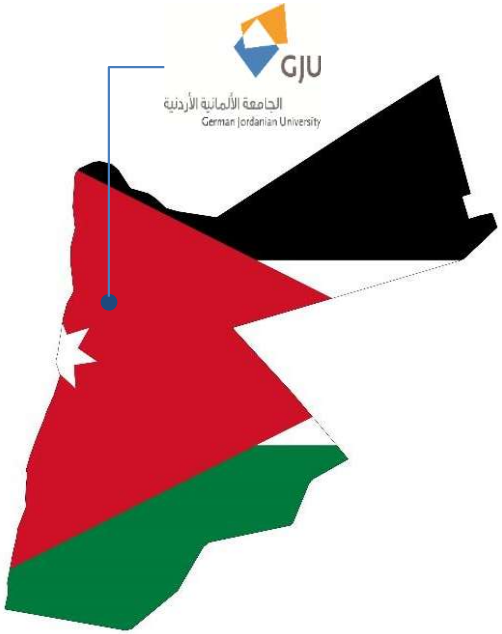
Faculty Exchange

Staff Exchange



MECH Partner Universities

MECH Partner Universities (20)	
RWTH Aachen	HS Magdeburg
HS Aalen	HS Merseburg
DHBW Karlsruhe	HS Osnabrück
DHBW Stuttgart	TH Ulm
TH Deggendorf	HS Bochum ★ Prof. Ralph Lindken
BTU Cottbus	FH Dortmund
HS Furtwangen (Villingen-Schwenningen)	Darmstadt HS
HS Hof	HS RheinMain
EAH Jena	Kassel University
Freiberg TU	
Reutlingen HS	



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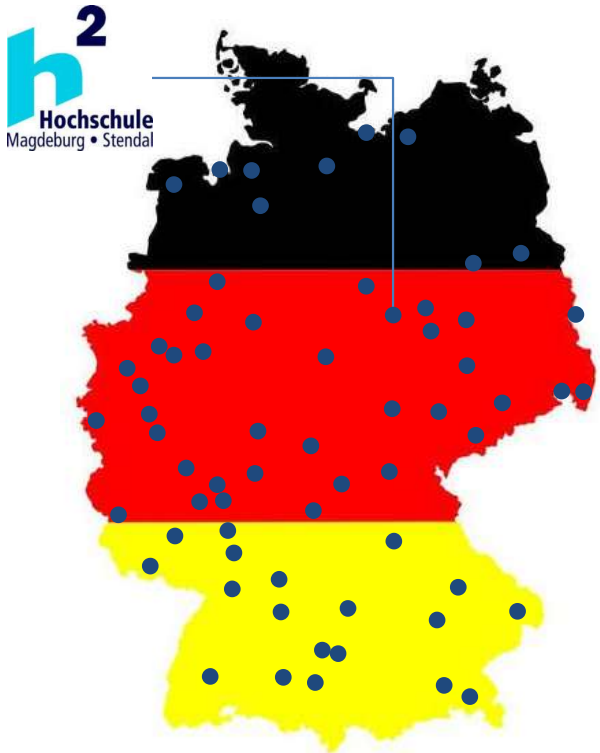


MECH/SATS GY Committee

Prof. Safwan Altarazi

Dean

School of Applied Technical Sciences

Dr. Mutaz M. Ryalat

Vice Dean

School of Applied Technical Sciences

Dr. Sameer Al-Dahidi

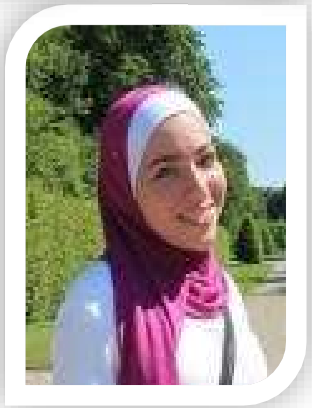
Exchange Coordinator

MECH Department

Dr. Aiman Al-Share

Department Chair

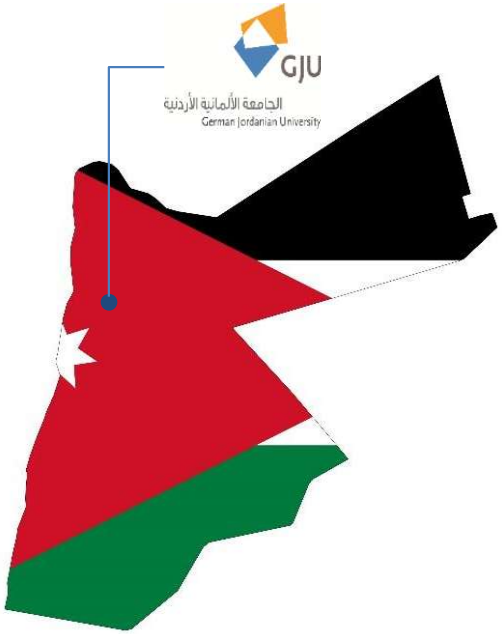
MECH Department



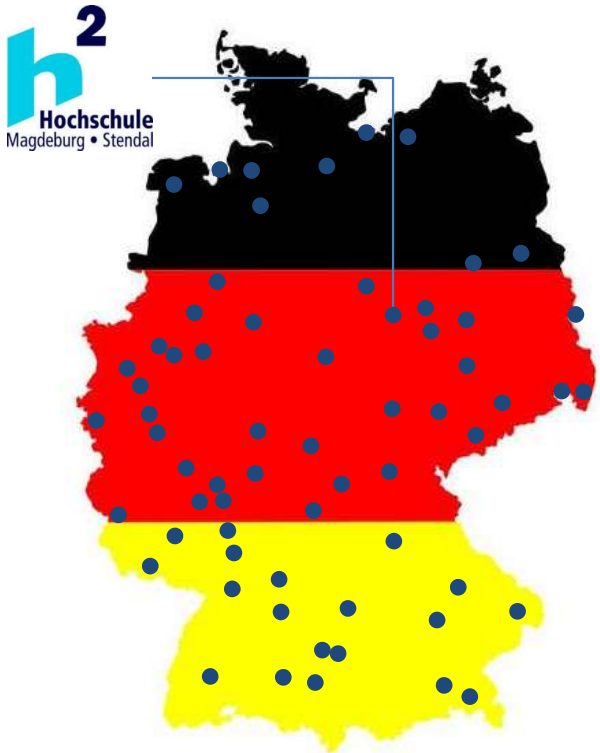
Eng. Hala Qitouqa

Exchange Officer

School of Applied Technical Sciences



Students Exchange



B.Sc. in Mechanical & Maintenance Engineering

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German Jordanian University

Framework for B.Sc. Degree (Semester Credits - 2020)

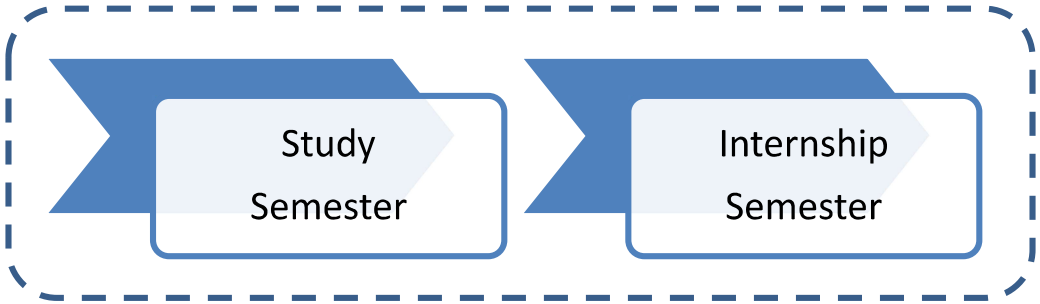
Classification	Credit Hours		
	Compulsory	Elective	Total
University Requirements	21	6	27
School Requirements	43	-	43
Program Requirements	92	12	104
Total	**156**	**18**	**174**

- 6 German-language courses (18 credit-hours).
- International Internship in Germany (12 credit-hours).
- 4 elective courses to be studied in Germany (12 credit-hours).

Students Exchange Structure

5-year bachelor curriculum, with 4'th year spent in Germany

German Year (GY)

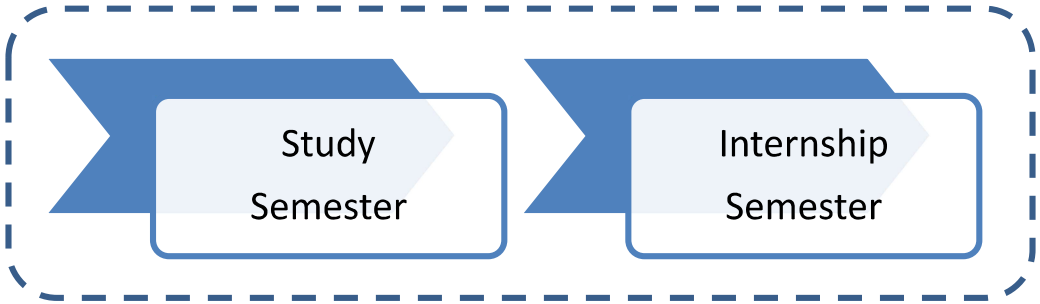


Students Exchange Structure

5-year bachelor curriculum, with 4'th year spent in Germany

German Year (GY)

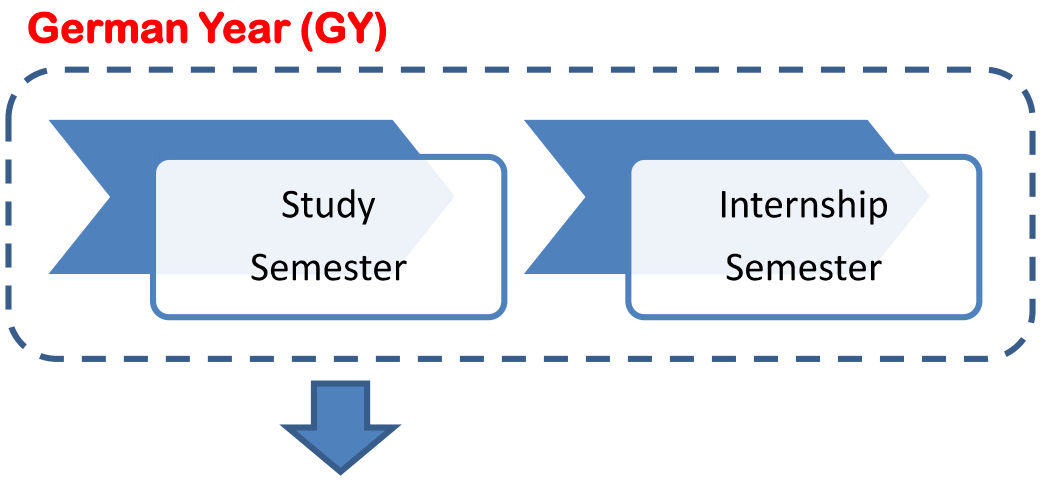
Prerequisites



- A minimum GPA of 60%
- Successful completion of 90 credit hours excluding all German language courses
- Students must have completed the required 160-hour Field Training in Jordan
- Passed the B1 German language test (2-4 parts)
- Passed the 5th level of the English language courses
- **Passed all obligatory courses of MECH department**
    1. Power and Refrigeration Cycles
    2. Theory of Machines
    3. Machine Design
    4. Heat Transfer

Students Exchange Structure

5-year bachelor curriculum, with 4'th year spent in Germany



- **1** semester at a German partner university;
- Ideally, to study **4** elective courses, examples *Maintenance Costing*, *Project Management*, *Applied Thermal Systems*, *Multibody Dynamics*, etc.;
- **3** compulsory courses are also allowed, examples *Mechanical Vibrations*, *Internal Combustion Engines*, *HVAC*, etc.;
- International Office (IO);
- **Transcript of Records (ToR) for credits transfer;**

Student Exchange Structure

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German Jordanian University

Learning Agreement

LEARNING/TEACHING AGREEMENT

ACADEMIC YEAR 20..../20.... - FIELD OF STUDY: .....

Name of student: .....Student ID:.....
SENDING UNIVERSITY: ...The German Jordanian University Country: .....Jordan.....

DETAILS OF THE PROPOSED STUDY PROGRAMME ABROAD – LEARNING/TEACHING AGREEMENT

HOST UNIVERSITY: ..... Country: .....

Course code	Course title	Language of Instruction	Number of ECTS / SWS credits at Host University	Number of credits at GJU

(if necessary, continue the list on a separate sheet)

Student's signature..... Date: .....

SENDING UNIVERSITY: GJU
We confirm that the proposed learning/teaching agreement is approved.

Name & signature Exchange Officer	Name & signature Dean of Faculty	Name & signature Head of International Office
.....	.....	.....
Date:.....	Date:	Date: .....

HOST UNIVERSITY:
We confirm that the proposed learning/teaching agreement is approved.

Name & signature Departmental coordinator	Name & signature Institutional coordinator
.....	.....
Date:	Date: .....

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German Jordanian University

International Office

SATS Credits Transfer

School of Applied Technical Sciences
German Jordanian University
German Year Credit Transfer Form: (Agreement)

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German Jordanian University

Student Name : _____ Student ID : _____ Major : ☐ IE ☐ ME ☐ TME

Host University : _____ Outgoing semester : _____ Outgoing Year : _____

Host University				Equivalent Courses at GJU				
Code	Name	ECTS	SWS	Code	Name	Course Type	CrHr	Remarks
	Total :					Total :		

Student	
Name :	
Signature :	
Date :	

Exchange Coordinator	
Name :	
Signature :	
Date :	

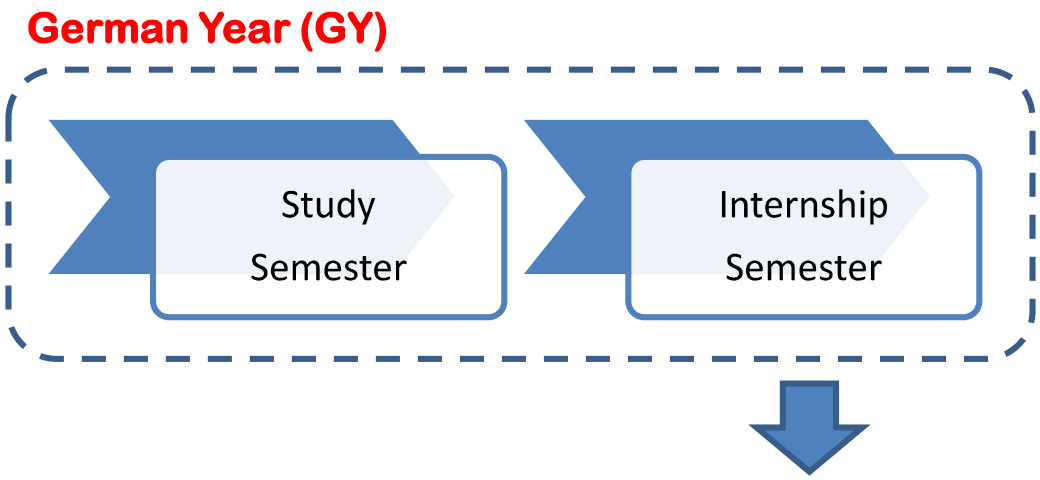
Dean	
Name :	
Signature :	
Date :	

* Only this listed courses will be transferred to GJU, unless supported by official communication with the corresponding Exchange Coordinator/Officer
* Maximum transferrable credits : 21 CrHr
* Maximum elective credits : 12 CrHr
* Courses not included in the official transcript will not be transferred

- **Accreditation**
  - 1 Credit Hour = 1.5 ECTS = 1 SWS
  - Full semester load is 21 Credit Hours = 30 ECTS
  - Most courses are 3 Credit Hours = 5 ECTS

Students Exchange Structure

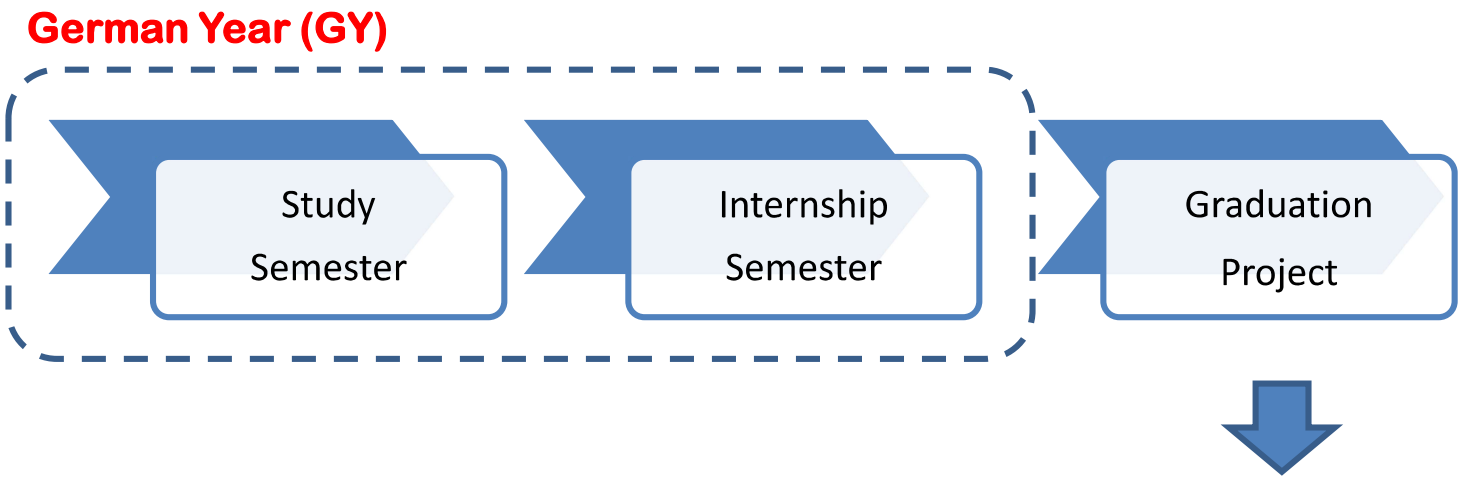
5-year bachelor curriculum, with 4'th year spent in Germany



- The length of the internship is **20** weeks minimum;
- Has to be undergone with industries, companies, or institutions;
- Real work placement/follow the rules stipulated in the internship contract;
- Office for Industrial Links (OIL);
- **Internship report for evaluation and credits transfer.**

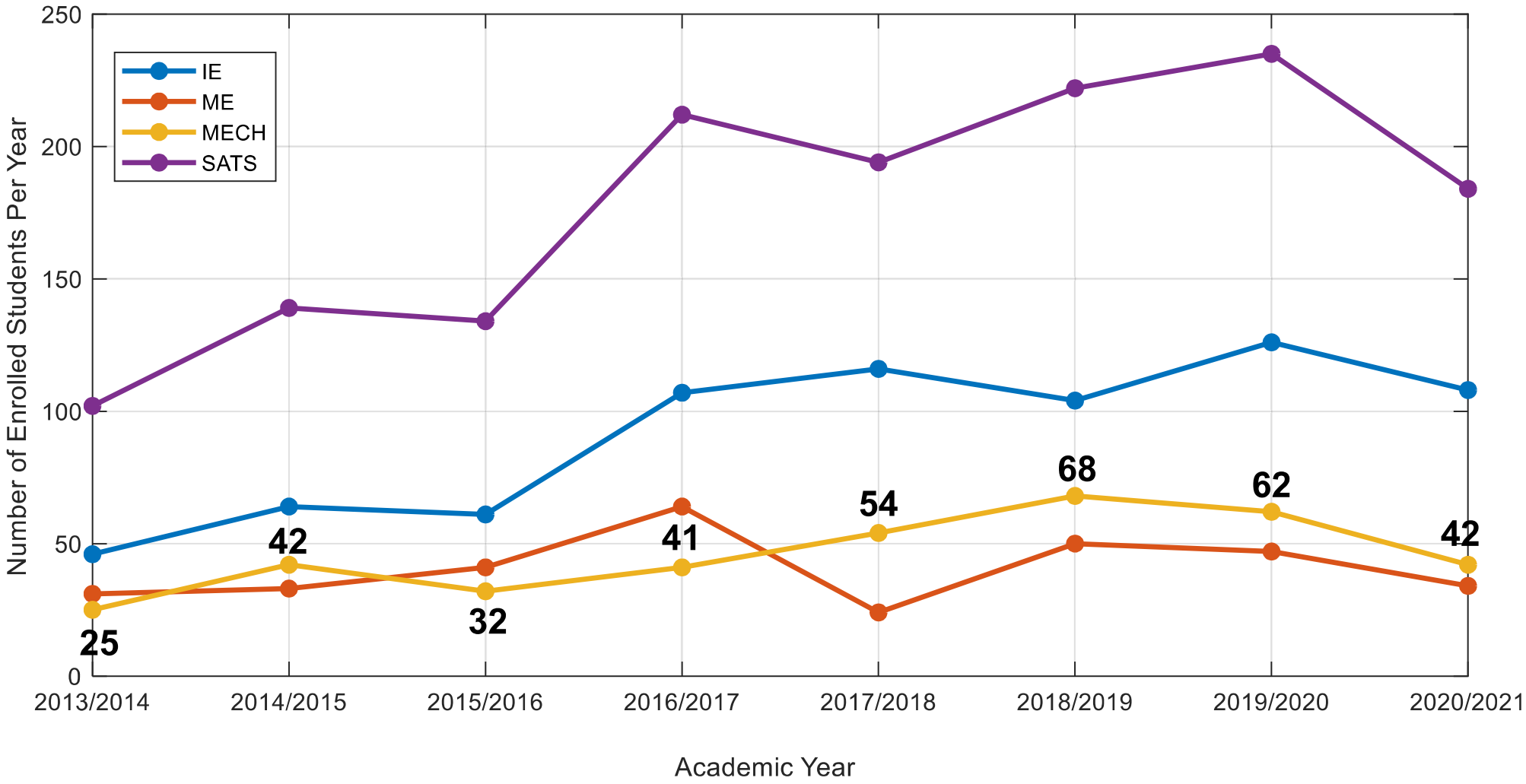
Students Exchange Structure

5-year bachelor curriculum, with 4'th year spent in Germany



- The length of the graduation project is **16** weeks minimum (no overlap with the internship);
- Any course work completed during the graduation project period is not eligible for transfer credit at the GJU.
- The student must be physically working full-time on the graduation project.
- The project cannot be a continuation of the work performed during the internship.
- The project must have a project advisor at the both sides.
- **Project report and defense at GJU.**

MECH: Figures and Facts



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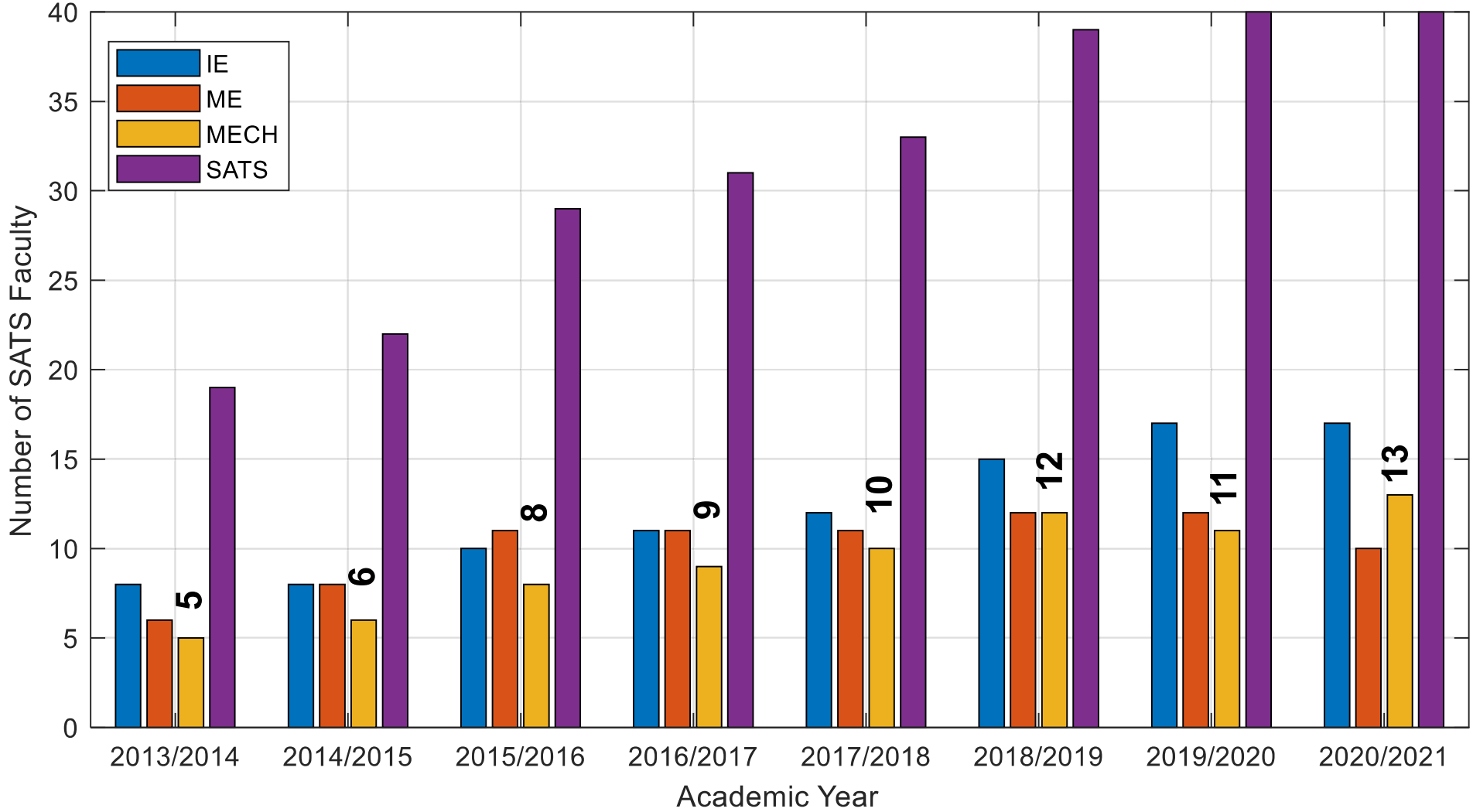

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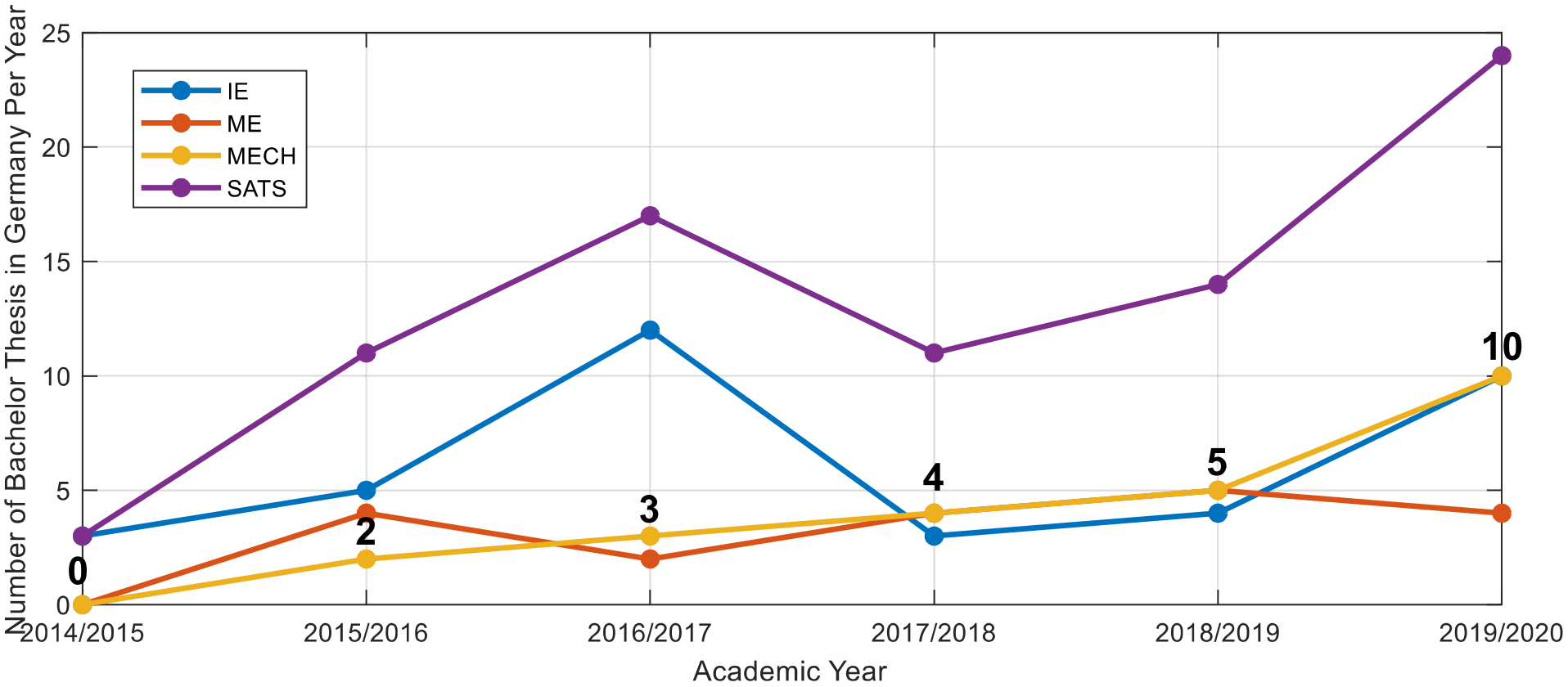
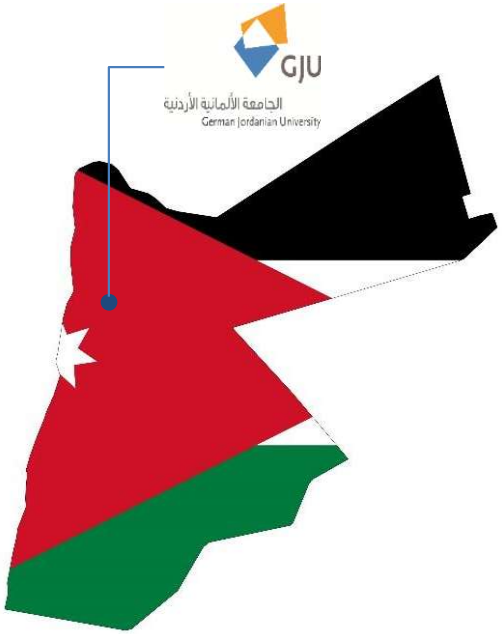


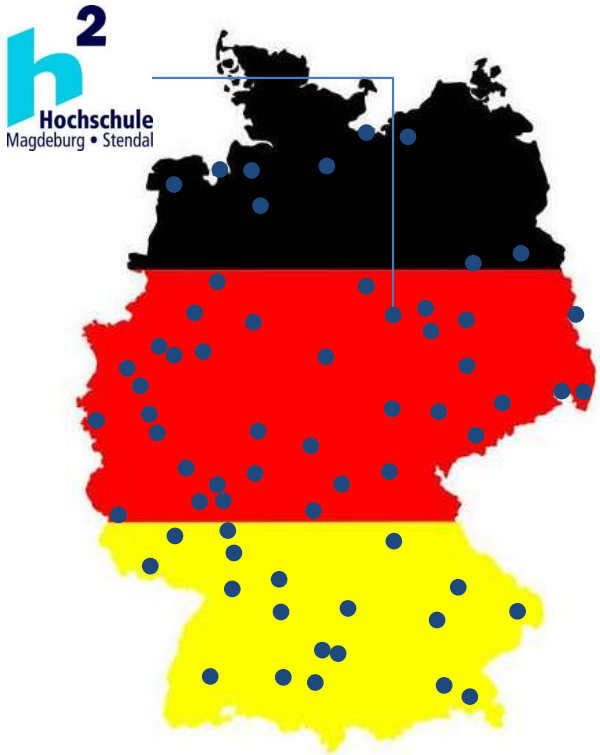
MECH Exchange Statistics

Number of MECH outgoings per partner university so far …

MECH Partner Universities (20)	
RWTH Aachen **(5)**	HS Magdeburg **(33)**
HS Aalen **(16)**	HS Merseburg **(19)**
DHBW Karlsruhe **(12)**	HS Osnabrück **(10)**
DHBW Stuttgart **(9)**	TH Ulm **(2)**
TH Deggendorf **(28)**	HS Bochum **(4)**
BTU Cottbus **(18)**	FH Dortmund **(4)**
HS Furtwangen (Villingen-Schwenningen) **(10)**	Darmstadt HS **(5)**
HS Hof **(17)**	HS RheinMain **(3)**
EAH Jena **(7)**	Kassel University **(4)**
Freiberg TU **(5)**	**Total = 214**
Reutlingen HS **(3)**	



Faculty Exchange



Flying Faculty (FF) Program

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German Jordanian University

Why?	To enhance the exchange of expertise between GJU and its German partner universities
Who?	- Professors/lecturers especially from the partner universities - Lecturers from industrial partners
Where?	At GJU
When?	- Between Semesters [Intensive/Crash Course] - During Semesters [Part of a Course]
What?	Minimum of **20 teaching hours** in a Maximum of **21 days**
How Many?	Per Department each Year → Two candidates + One reserved

Flying Faculty (FF) Program

What Covered?

A honorarium payment of **29 Euro per lesson**

- Travel costs including **round-trip airline ticket** (economy class)
- **Train ticket** to and from the airport in Germany
- **Visa** cost in Jordan of **40 JOD**
- **Taxi** costs from and to Amman airport of up to **30 JOD** for each way (with a valid receipt)

- **Per diem** of **80 JOD** for the days (only), the professor/lecturer is teaching at GJU.
- The per diem is intended to cover the costs for accommodation, living expenses, and commuting costs to and from campus in Jordan.

Flying Faculty (FF) Program

GJU
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German Jordanian University

Procedure?

Step 1: We contact potential new or former FF candidates to discuss possible teaching topics for the new upcoming calendar year.
[Within the Year]

Step 2: We send the filled "Application Form" to the International Office.
[Until November 30]

Step 3: IO informs ECs and FFs about approval from Project Office Magdeburg-Stendal and IO informs FF about all necessary administrative steps to be done within the program.
[Beginning of the New Calendar Year]

Step 4: EC stays in contact with FF to specify and draw the schedule and to fix the planned period of stay.
[After approval of candidates]

Flying Faculty (FF) Program

GJU
الجامعة الألمانية الأردنية
German Jordanian University

Procedure?

Step 5: EC sends an official letter to the GJU President, asking for providing the daily allowance of 80 JOD for the FF.
[Latest 4 weeks before arrival of FF]

Step 5: EC invites the FF officially.
[After approval by the president]

Step 6: EC sends an official letter to the Finance Department.
[After arrival of candidate]

Step 7: We fill the first part of "Letter of Confirmation“, sign, and inform FF to meet the responsible person at IO to get the signature by IO.
[Last days of stay of the candidate]

FF Program
Exchange Statistics

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German Jordanian University

Number of Professors visited GJU and offered/shared elective/compulsory courses to our students since 2016 as part of the FF program per partner university.

Partner	Number of FF Professors
Aalen HS	1
Braunschweig TU*	3
DHBW Bad Mergentheim	1
Heilbronn HS	1
Jena EAH	5
Kempten HS	1
Würzburg-Schweinfurt FHWS (Campus Schweinfurt)	1
Frankfurt FH	1
Airbus Industries*	2

*Not a Partner but received through the FF program

FF Program
Exchange Statistics

GJU
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German Jordanian University

FF Candidates for 2020/2021/2022

Full name applicant	Acad. Title applicant	Home University in Germany
Yazan Abualfeilat	Eng.	Deutsche Bahn Engineering and Consulting, Berlin
Dirk Stegelmeyer	Prof. Dr.	Frankfurt University of Applied Sciences

FF Program
Exchange of Experiences

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الجامعة الألمانية الأردنية
German Jordanian University

Dr. Naser Al Natsheh (TU Braunschweig)

GJU

Media

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- Video Gallery

GJU Hosts German Professors under the Flying Faculty program

Amman- 3 August 2017

In July 2017, the School of Applied Technical Sciences(SATS) has gratefully hosted three German Professors under the Flying Faculty program. SATS extends their appreciation for the experience these guest professors have provided for the School's staff and students. Their assignments are detailed here:

Prof. Dr. Ansgar Meroth, from Hochschule Heilbronn, taught microcontroller based course about sensor networks for the Mechatronics Engineering Department.

Prof. Ralph Schuhmann, from EAH Jena, taught a course in Engineering, Management and Law for the Industrial Engineering Department.

Dr.-Ing. Naser Al Natsheh, from Technische Universität Braunschweig, taught the course Dynamics Simulation Using Matlab & Simulink for the Mechanical Engineering Department.

Flying Faculty (FF) Program

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German Jordanian University

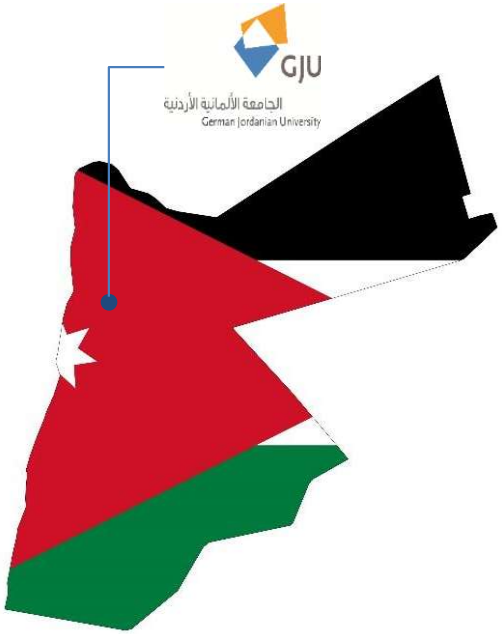
Interests in our next FF Program 2021/2022

Report your information using the link below:

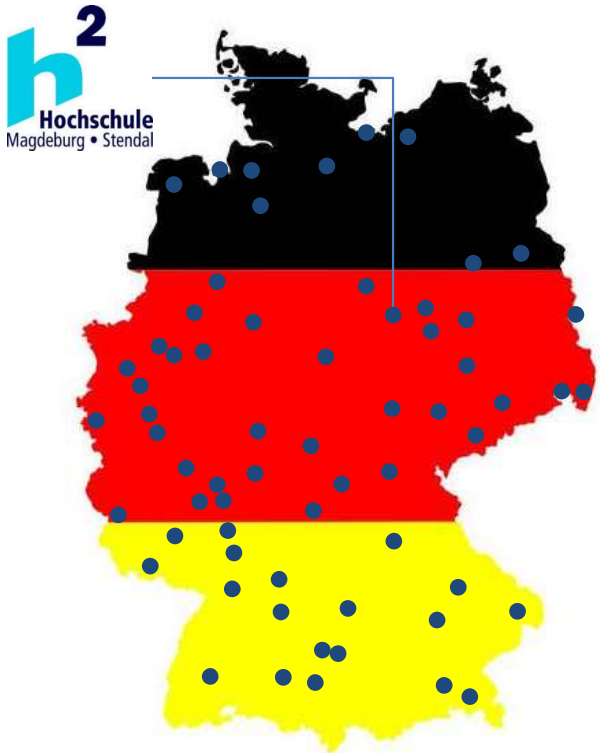
https://docs.google.com/spreadsheets/d/1ex7dsxxPMRSpG8Ygc6yq85FyLXpAkA5pTt0tG1fA5P4/edit?usp=sharing

Refer to the "Study Plan 2020" shown here:

http://www.gju.edu.jo/content/mechanical-and-maintenance-engineering-996



Staff Exchange



Staff Mobility Program

GJU
الجامعة الألمانية الأردنية
German Jordanian University

Why?	To provide the GJU academic and administrative staff hand working experiences and to strengthen relations between GJU and its partners
Who?	- GJU Academic Staff - GJU Administrative Staff
Where?	In Germany at one of the partner universities
When?	- During Semesters | Summer Holiday [3 | 4 Weeks] **(Academic)** - 4 Weeks **(Administrative)**
What?	Teaching; Discovering and practicing new teaching methods and techniques; Development of study programs; Exchange of teaching methods and curriculum contents; Development of teaching and/or research co-operations | Observation; Job shadowing; Study visits; Participating in seminars and workshops

Staff Mobility Program

What Covered?

- 1500 EUR/month

- **Travel expenses** of up to 650 JOD continues the salary payment during the stay in Germany

Staff Mobility Program

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German Jordanian University

How to Apply?

The application needs to include the following documents and has to be submitted to the International Office. Only completed applications will be considered.

1. **Application form** with the signature of your Dean or supervisor,
2. **Letter of recommendation** by your Dean or supervisor,
3. Updated **CV,**
4. **Proof of English** (or German) B2 level (Only for administrative staff),
5. **Letter of intent** in English (or German), that states:
   What do you hope to do and learn in Germany during your stay?
   What are the expected benefits of your training for your department at GJU?
6. **Invitation letter** from the German host institution (If already available).*
   *If you do not have a host identified, the IO will assist you. For assistance to find a suitable host institution, academic staff may also turn to the responsible Exchange Coordinators at their schools.

Staff Mobility Program Exchange Statistics

GJU
الجامعة الألمانية الأردنية
German Jordanian University

Number of SATS Staff accepted as part of the Staff Mobility Program

PU	Number of Staff Exchanged
Würzburg-Schweinfurt FHWS (Campus Schweinfurt)	**4+2***
HS Furtwangen	**2+1***
HS Bochum	**3**
TU Köln	1
HS Schmalkalden	1
HS Aalen	1
Hochschule Koblenz	1
HS Freiburg	1
Technische Universität Braunschweig	1
Technische Universität Dresden	1
Technische Universität Darmstadt	1
TU Hamburg	1
HS Wuppertal	1
EAH Jena	1
Duale Hochschule Baden- Württemberg Karlsruhe	1

* Delayd due to personal/COVID-19

Staff Mobility Program

GJU
الجامعة الألمانية الأردنية
German Jordanian University

Interests of having Staff visiting you in 2021/2022

Report the required information using the link below:

https://docs.google.com/spreadsheets/d/1MBCLN3w54aoh2RWQ9oxDrnUe6Az_euThSGvxPaLEjLo/edit?usp=sharing

Useful Links …

- **SATS**
http://www.gju.edu.jo/content/school-applied-technical-sciences-379

- **Mechanical and Maintenance Engineering Department**
http://www.gju.edu.jo/content/mechanical-and-maintenance-engineering-992

- **SATS Network Meetings**
http://www.gju.edu.jo/content/sats-9028

- **Outgoing Students**
http://www.gju.edu.jo/content/outgoing-students-3793

- **Flying Faculty Program**
http://www.gju.edu.jo/content/general-information-12007

- **Train-of-Trainer Program**
http://www.gju.edu.jo/content/gju-staff-mobility-program-3788

Desiderata …

- Encourage students from German Partners to visit GJU and study courses (e.g., 1 semester).
- Increase number of seats offered by the MECH German Partner Universities.
- Extend the cooperation with the MECH partner universities to cover the other two departments of SATS (Mechatronics and Industrial Engineering).
- Encourage Faculty members at the German Partner Universities to visit GJU and offer an elective course to our students [as part of the FF Program].
- Encourage Staff members to visit the Partner Universities [as part of the ToT Program].
- Enhance the Research Cooperation between the Faculty members of the MECH/SATS and German Partner Universities.
- Encourage the Participation to various available Funding EU Projects.

Thank You for Your Attention

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