# Instructor's *Works With* Network at Habib University


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## INTRODUCTION

This project is based on building an Instructor's Work Network at Habib University. It is based on the MS outlook "works with" function which allows us to identify people or groups of people that are in contact with each other. The main objective of this project is that we are analyzing and mapping faculty members' work networks to explore the feasibility of asking more complex questions around the faculty members' at HU. These questions could be around, how much of an interdisciplinary experience do faculty members get, how leadership positions may affect their working patterns etc.

## METHODOLOGY

The way data has been collected is through MS Outlook primarily. The list of faculty members and their office hours have been collected from RO to have a record of all present faculty members at Habib. The MS Outlook feature will be used to identify people that each faculty member is working with or is working under using the "works with" section. The first six people that appear in the section are considered for our network. The excel sheet of all faculty members will be used to maintain important information such as school, major, faculty pod, and status which includes Adjunct, Professor, Leadership or Dean's Fellow.

## VIPs of the network:

People with highest Eigenvector and betweenness centrality:

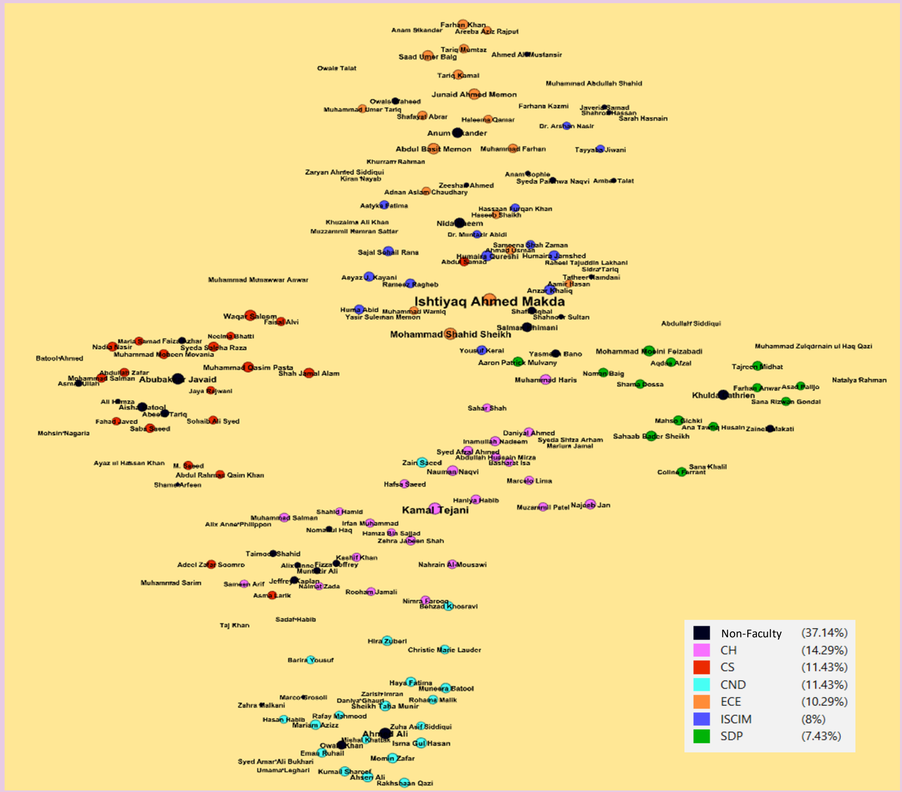
1. Ishtiyaq Makda (1.00)
2. Shahid Shaikh (0.77)
3. Kamal Tejani (0.58)

## VIPs of the network (2):

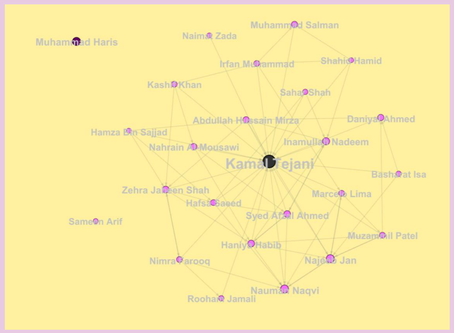
People with highest in-degree

1. Ishtiyaq Makda (27)
2. Kamal Tejani (23)
3. Shahid Shaikh (19)
4. Ahmed Ali (18)
5. Abubakkar Javaid (17)

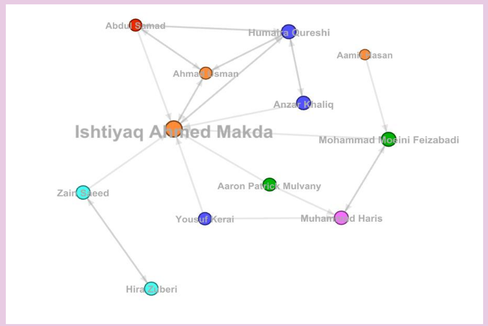
- **A faculty member is usually 3 people away from eachother**
- Diameter = 7
- Average Degree / node = 3.737
- Number of communities detected = 6-8



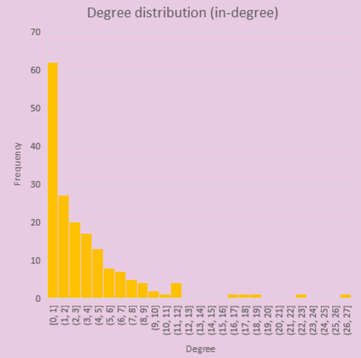

**Communities in the Graph:**
Visualizing for hubs, we see how the graph is clustered around in communities based on majors. Usually the hubs in these communities are the Program Coordinators. Running community detection algorithms also corresponded with this same pattern. Some identified Ishtiyaq Makda (Dean, Academic Systems and RO) as the centre for another community of administrative staff members. It is notable that the RO staff (Dr. Shahid Sheikh and Ishtiyaq Makda) are the central hubs bridging each of these communities.




For almost all majors, the Program Director was disconnected from their own faculty members. Being more connected with other leadership staff instead



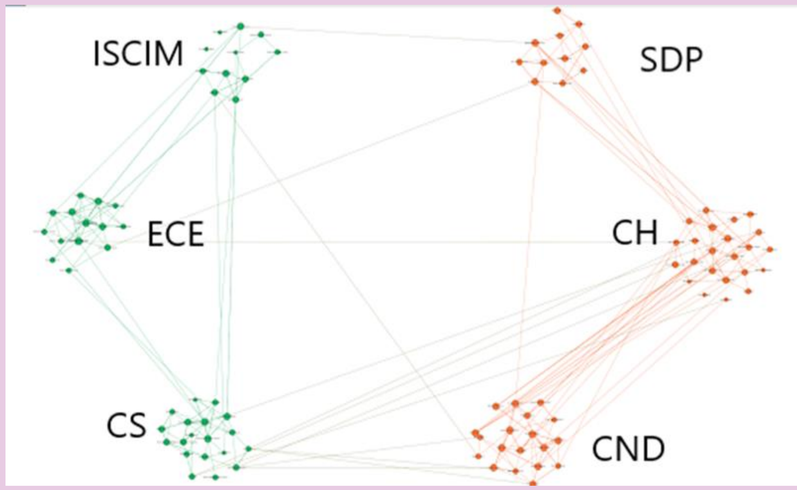

The leadership from each major does demonstrate interconnectivity between majors, even though regular faculty-faculty relationships do not.




The degree distribution demonstrates a pareto distribution, with most nodes having few connections, and some being hubs.

| | Clustering Coefficient | Total Triangles | Total Nodes |
|---|---|---|---|
| **Major** | | | |
| ISCIM | 0.637 | 8 | 14 |
| ECE | 0.593 | 42 | 18 |
| CH | 0.568 | 52 | 24 |
| CS | 0.423 | 18 | 20 |
| CND | 0.375 | 29 | 20 |
| SDP | 0.286 | 8 | 13 |
| **School** | | | |
| DSSE | 0.414 | 93 | 52 |
| AHSS | 0.234 | 58 | 57 |

While inter-major connectivity is not high, there is a fair bit of intra-major clustering.




This graph visualizes interconnectivity between majors. DSSE: Green, AHSS: Orange. We see some interaction between CH, CS and CND faculty Members, but very little otherwise. This might indicate low faculty-faculty interaction on work basis using Office services. Some of these connections also existed because of organizational strucutres (e.g. adjunct faculty connected to adjunct faculty on cold start).

## CONCLUSION

Overall, we were able to identify communities major wise. But communities don't exist Faculty type wise I.e. Adjunct, Dean's Fellow or Professor etc. However, one community exists of people in faculty leadership. It does answer our research questions and also portrays a concern that there is very little inter school communication. Interestingly, Program Directors have no links with faculty of their own major except in case of faculty Leadership.

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Graph showing overall clustering and interconnectivity?

Graphs for each major

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## Graph pool

Graph showing overall clustering and interconnectivity?

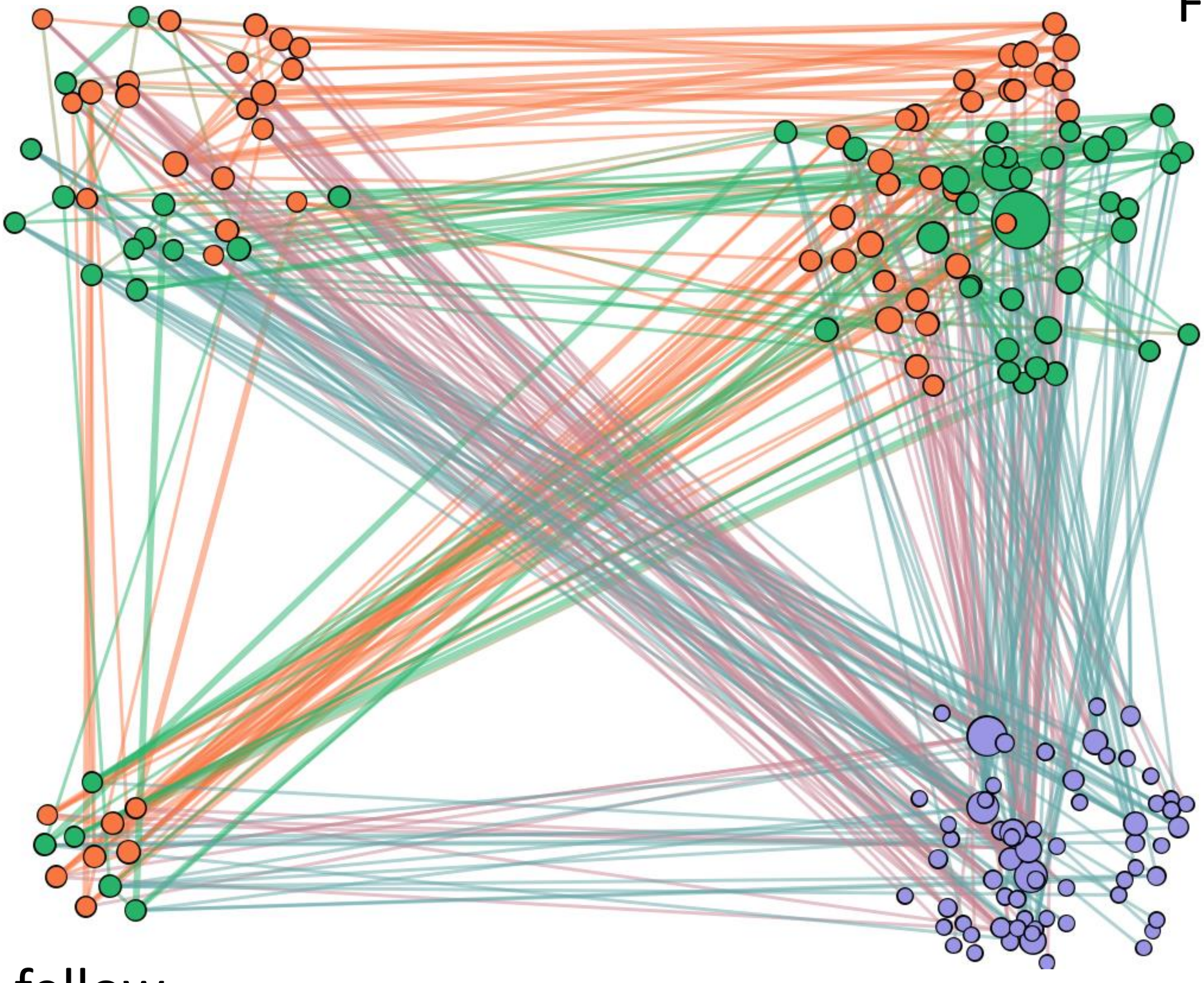
Leadership centrality

Graph showing connectivity between schools

Graphs for each major

Adjunct

Full-time



Dean’s fellow

Staff