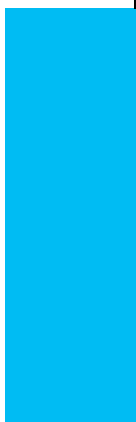


# Graduation Plan



## Graduation Plan: All tracks

Personal information	
Name	Nawaz Dabbagh
Student number	1523996 (wordt gebruikt voor koppeling met student file)
Telephone number	0652355238
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Studio	
Name / Theme	AE studio
Teachers	Monique Smith & Marcel Bilow
Argumentation of choice of the studio	AE studio allows me to find the architectural potential that becomes possible by new technologies.
Graduation project	
Title of the graduation project	Philips Stadium: A solar envelope as an architectural tool
Goal	
Location:	Eindhoven
The posed problem,	The Philips Stadium is situated in a dense built environment. The stadium is mostly used to days per week. The remaining days the building can be considered as a vacant building. Furthermore the existing stadium doesn't have a relationship with the city and the surrounding area, nor does it have any added value for the spatial and architectural quality of the area. The Philips stadium is also not a sustainable building, thus making it unfitting for the 21st century.
research questions and	Overall Design Wuestion: How to transform the existing Philips stadium into a solar powered stadium with a capacity of 45 000 seats and at the same time integrating the building with the city.

	Thematic Research Question: How to design a new building envelope that can optimize the solar energy production and at the same time enhances the desired spatial and architectural quality.
design assignment in which these result.	The transformation of the existing stadium into a sustainable stadium with a high architectural quality.
<p>The aim of the graduation project is to reinvent the meaning and use of the football stadium in the city center that fits in the 21<sup>st</sup> century. To achieve this objective, the Philips stadium must be transformed into a sustainable football stadium where other activities that are not related to football take place. Thus making the building an exciting meeting place in the city.</p>	

## Process

### Method description

#### Literature study

Literature study will primarily be used to gain knowledge of the use of photovoltaic in buildings. Sources as books and articles are helpful to gain sufficient knowledge to adequately start the research.

#### On-site research

This research method will mostly be used during the beginning of the research. This method will give a better understanding of the problems at the location and a better sense of scale will be achieved.

#### Case studies

Case studies give insight in how the theory is implemented in actual buildings. This will be very helpful to formulate a strategy when a certain technologies is chosen. It will also show the architectural and spatial qualities of the possible design directions.

#### Research by design

This methodology is very important during the research of how to use the solar envelope as an architectural tool. Computer software's such as Vasari are an important tool within this methode. Vasari allows the student to make accurate and fast solar radiation analysis. Thus for each design direction the amount of solar radiation can be calculated. This allows a scientific comparison that is based on specific data, thus leading to an optimal performance design.

## **Literature and general practical preference**

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F. Sick & T. Erge (Eds.).(n.d.), Photovoltaics in buildings: a design handbook for architects and engineers. Freiburg: XYZ Publishing

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Kural, R., (1997), Playing fields: alternative spaces for sport, culture and recreation, Denmark: Royal Danish Academy of Fine Arts, School of Architecture Publishers

James & James, (2005), Planning and installing photovoltaic systems: a guide for installers, architects and engineers, London: James & James

John, G., Sheard, R., Vickery, B., (2007), Stadia: A design and development guide, Amsterdam: Elsevier

Prasad, D., Snow, M., (2005), Designing with solar power: a sourcebook or building integrated photovoltaic, Victoria: Images Publishing

Roberts, S., Guariento, N., (2009) Building integrated photovoltaic, Berlin: Birkhäuser

Schittich, C., (2003), Solar Architecture: strategies, visions, concepts, Basel: Birkhäuser

## **Reflection**

### **Relevance**

Most stadiums are only used for football related events. However this results in the building being empty for a big part of the week. Football stadiums also require a lot of energy and water. Reinventing the use of football stadium will create a general strategy and a different view of how football stadiums could be used in the present and in the future. Furthermore a lot of existing football stadiums in Europe will need to be upgraded in the future. This could be to increase the capacity, renovate or simply making it more sustainable. Therefore this graduation project will be an example of how to deal in the future with the transformation of the existing football stadiums that are located in the city centre.

## **Time planning**

**See next page**

### MSc 3

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**MSc 4**

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