



## DEPARTMENT OF INFORMATION TECHNOLOGY

### Award of B.E/B.Tech with Additional Minor Engineering Degree with effect from 2018-19

The following is the list of courses that will be considered for the current semester for the award of B.E/B.Tech with Additional Minor Engineering degree. The proposed list will be updated by the departmental committee at the beginning of the every semester based on the courses offered by NPTEL/MOOCs/SWAYAM/Any other online platforms. Credits will be awarded for the courses which have proctored examination.

#### Equivalent Minors degree courses for Even Semester:2021-2022

#### Additional Minor Engineering Degree In

- I. Artificial Intelligence
- II. Data Science
- III. Augmented Reality- Virtual Reality
- IV. InformationSecurity

#### List of Swayam/NPTEL courses for the award of Minor Engineering in Artificial Intelligence:

II Semester						
S.No	Course Name	No. of weeks	No. of credits	Start and End Date	Date of Exam	Link
1	An Introduction to Programming Through C++	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/101/106101208/">https://nptel.ac.in/courses/106/101/106101208/</a>
2	Discrete Mathematics - IIITB	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/108/106108227/">https://nptel.ac.in/courses/106/108/106108227/</a>
3	Programming, Data Structures And Algorithms Using Python	8	2	24/01/2022 18/03/2022	27/03/2022	<a href="https://nptel.ac.in/courses/106/106/106106145/">https://nptel.ac.in/courses/106/106/106106145/</a>
4	Discrete Mathematics	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106183/">https://nptel.ac.in/courses/106/106/106106183/</a>

IV Semester						
S.No.	Course Name	No. of weeks	No. of credits	Start and End Date	Date of Exam	Link
1.	Introduction to Database Systems	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106220/">https://nptel.ac.in/courses/106/106/106106220/</a>
2.	Data Base Management System	8	2	24/01/2022 18/03/2022	27/03/2022	<a href="https://nptel.ac.in/courses/106/105/106105175/">https://nptel.ac.in/courses/106/105/106105175/</a>
3	The Joy of Computing using Python	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106182/">https://nptel.ac.in/courses/106/106/106106182/</a>
4	Discrete Structures	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105192/">https://nptel.ac.in/courses/106/105/106105192/</a>
VI Semester						
S.No.	Course Name	No. of weeks	No. of credits	Start and End Date	Date of Exam	Link
1	Cloud computing	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105167/">https://nptel.ac.in/courses/106/105/106105167/</a>
2	Software Conceptual Design	4	1	21/02/2022 18/03/2022	24/04/2022	
3	Fundamental Algorithms: Design and Analysis	4	1	21/02/2022 18/03/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105157/">https://nptel.ac.in/courses/106/105/106105157/</a>
4	Design and analysis of algorithms	8	2	24/01/2022 18/03/2022	27/03/2022	<a href="https://nptel.ac.in/courses/106/106/106106131/">https://nptel.ac.in/courses/106/106/106106131/</a>
5	Object Oriented System Development Using UML, Java And Patterns	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105224/">https://nptel.ac.in/courses/106/105/106105224/</a>
6	Data Analytics with Python	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/107/106107220/">https://nptel.ac.in/courses/106/107/106107220/</a>
7	Computer Architecture	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/102/106102157/">https://nptel.ac.in/courses/106/102/106102157/</a>
8	Design and Engineering of Computer Systems	8	2	24/01/2022 18/03/2022	27/03/2022	<a href="https://onlinecourses.nptel.ac.in/noc22_cs38/preview">https://onlinecourses.nptel.ac.in/noc22_cs38/preview</a>
VIII Semester						
1	Introduction To Industry 4.0 And Industrial Internet Of Things	12	3	24/01/2022 15/04/2022	24/04/2022 2	<a href="https://nptel.ac.in/courses/106/105/106105195/">https://nptel.ac.in/courses/106/105/106105195/</a>

2	Introduction To Internet Of Things	12	3	24/01/2022 15/04/2022	23/04/2022 2	<a href="https://nptel.ac.in/courses/106/105/106105166/">https://nptel.ac.in/courses/106/105/106105166/</a>
3	Reinforcement Learning	12	3	24/01/2022 15/04/2022	23/04/2022 2	<a href="https://nptel.ac.in/courses/106/106/106106143/">https://nptel.ac.in/courses/106/106/106106143/</a>
4	Deep Learning	12	3	24/01/2022 15/04/2022	23/04/2022 2	<a href="https://nptel.ac.in/courses/106/105/106105215/">https://nptel.ac.in/courses/106/105/106105215/</a>
5	Artificial Intelligence Search Methods for Problem Solving	12	3	24/01/2022 15/04/2022	23/04/2022 2	<a href="https://nptel.ac.in/courses/106/106/106106140/">https://nptel.ac.in/courses/106/106/106106140/</a>
6	Deep Learning - IIT Ropar	12	3	24/01/2022 15/04/2022	24/04/2022 2	<a href="https://nptel.ac.in/courses/106/106/106106184/">https://nptel.ac.in/courses/106/106/106106184/</a>
7	Getting Started with Competitive Programming	12	3	24/01/2022 15/04/2022	23/04/2022 2	<a href="https://nptel.ac.in/courses/106/106/106106231/">https://nptel.ac.in/courses/106/106/106106231/</a>
8	AI:Constraint Satisfaction	8	2	24/01/2022 18/03/2022	27/03/2022 2	<a href="https://nptel.ac.in/courses/106/106/106106158/">https://nptel.ac.in/courses/106/106/106106158/</a>
9	Introduction To Soft Computing	8	2	24/01/2022 18/03/2022	27/03/2022 2	<a href="https://nptel.ac.in/courses/106/105/106105173/">https://nptel.ac.in/courses/106/105/106105173/</a>
10	An Introduction to Artificial Intelligence	12	3	24/01/2022 15/04/2022	24/04/2022 2	<a href="https://nptel.ac.in/courses/106/102/106102220/">https://nptel.ac.in/courses/106/102/106102220/</a>

**List of Swayam/NPTEL courses for the award of Minor Engineering in Data Science:**

II Semester						
S.No.	Course Name	No. of weeks	No. of credits	Start and End Date	Date of Exam	Link
1	An Introduction to Programming Through C++	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/101/106101208/">https://nptel.ac.in/courses/106/101/106101208/</a>
2	Discrete Mathematics - IITB	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/108/106108227/">https://nptel.ac.in/courses/106/108/106108227/</a>
3	Programming, Data Structures And Algorithms Using Python	8	2	24/01/2022 18/03/2022	27/03/2022	<a href="https://nptel.ac.in/courses/106/106/106106145/">https://nptel.ac.in/courses/106/106/106106145/</a>

4	Discrete Mathematics	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106183/">https://nptel.ac.in/courses/106/106/106106183/</a>
<b>IV Semester</b>						
S.No.	Course Name	No. of weeks	No. of credits	Start and End Date	Date of Exam	Link
1	Data Base Management System	8	2	24/01/2022 18/03/2022	27/03/2022	<a href="https://nptel.ac.in/courses/106/105/106105175/">https://nptel.ac.in/courses/106/105/106105175/</a>
2	The Joy of Computing using Python	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106182/">https://nptel.ac.in/courses/106/106/106106182/</a>
3	Discrete Structures	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/105192/">https://nptel.ac.in/courses/106/105192/</a>
<b>VI Semester</b>						
S.No.	Course Name	No. of weeks	No. of credits	Start and End Date	Date of Exam	Link
1	Cloud Computing and Distributed Systems	8	2	24/01/2022 18/03/2022	27/03/2022	<a href="https://nptel.ac.in/courses/106/104/106104182/">https://nptel.ac.in/courses/106/104/106104182/</a>
2	Data Science for Engineers	8	2	24/01/2022 18/03/2022	27/03/2022	<a href="https://nptel.ac.in/courses/106/106/106106179/">https://nptel.ac.in/courses/106/106/106106179/</a>
3	Introduction to Machine Learning	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106139/">https://nptel.ac.in/courses/106/106/106106139/</a>
4	Python for Data Science	4	1	24/01/2022 18/02/2022	27/03/2022	<a href="https://nptel.ac.in/courses/106/106/106106212/">https://nptel.ac.in/courses/106/106/106106212/</a>
5	Machine Learning, ML	8	2	21/02/2022 15/03/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106202/">https://nptel.ac.in/courses/106/106/106106202/</a>
6	Cloud computing	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105167/">https://nptel.ac.in/courses/106/105/106105167/</a>
7	Software Conceptual Design	4	1	21/02/2022 18/03/2022	24/04/2022	
8	Fundamental Algorithms: Design and Analysis	4	1	21/02/2022 18/03/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/105157/">https://nptel.ac.in/courses/106/105157/</a>
9	Data Analytics with Python	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/107/106107220/">https://nptel.ac.in/courses/106/107/106107220/</a>

10	Computer Architecture	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/102/106102157/">https://nptel.ac.in/courses/106/102/106102157/</a>
<b>VIII Semester</b>						
1	Introduction To Internet Of Things	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105166/">https://nptel.ac.in/courses/106/105/106105166/</a>
2	Reinforcement Learning	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106143/">https://nptel.ac.in/courses/106/106/106106143/</a>
3	Deep Learning	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105215/">https://nptel.ac.in/courses/106/105/106105215/</a>
4	Artificial Intelligence Search Methods for Problem Solving	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106140/">https://nptel.ac.in/courses/106/106/106106140/</a>
5	Deep Learning - IIT Ropar	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106184/">https://nptel.ac.in/courses/106/106/106106184/</a>
6	Getting Started with Competitive Programming	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106231/">https://nptel.ac.in/courses/106/106/106106231/</a>

**List of Swayam/NPTEL courses for the award of Minor Engineering in AR-VR Minors:**

<b>II Semester</b>						
S.No.	Course Name	No. of weeks	No. of credits	Start and End Date	Date of Exam	Link
1	An Introduction to Programming Through C++	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/101/106101208/">https://nptel.ac.in/courses/106/101/106101208/</a>
2	Discrete Mathematics - IITB	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/108/106108227/">https://nptel.ac.in/courses/106/108/106108227/</a>
3	Programming, Data Structures And Algorithms Using Python	8	2	24/01/2022 18/03/2022	27/03/2022	<a href="https://nptel.ac.in/courses/106/106/106106145/">https://nptel.ac.in/courses/106/106/106106145/</a>
4	Discrete Mathematics	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106183/">https://nptel.ac.in/courses/106/106/106106183/</a>

IV Semester						
S.No.	Course Name	No. of weeks	No. of credits	Start and End Date	Date of Exam	Link for Registration
1	Data Base Management System	8	2	24/01/2022 18/03/2022	27/03/2022	<a href="https://nptel.ac.in/courses/106/105/106105175/">https://nptel.ac.in/courses/106/105/106105175/</a>
2	The Joy of Computing using Python	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106182/">https://nptel.ac.in/courses/106/106/106106182/</a>
3	Discrete Structures	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105192/">https://nptel.ac.in/courses/106/105/106105192/</a>
VI Semester						
S.No.	Course Name	No. of weeks	No. of credits	Start and End Date	Date of Exam	Link for Registration
1	Cloud computing	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105167/">https://nptel.ac.in/courses/106/105/106105167/</a>
2	Software Conceptual Design	4	1	21/02/2022 18/03/2022	24/04/2022	
3	Fundamental Algorithms: Design and Analysis	4	1	21/02/2022 18/03/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105157/">https://nptel.ac.in/courses/106/105/106105157/</a>
4	Data Analytics with Python	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/107/106107220/">https://nptel.ac.in/courses/106/107/106107220/</a>
5	Computer Architecture	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/102/106102157/">https://nptel.ac.in/courses/106/102/106102157/</a>
6	Python for Data Science	4	1	24/01/2022 18/02/2022	27/03/2022	<a href="https://nptel.ac.in/courses/106/106/106106212/">https://nptel.ac.in/courses/106/106/106106212/</a>
7	Machine Learning, ML	8	2	21/02/2022 15/03/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106202/">https://nptel.ac.in/courses/106/106/106106202/</a>
8	Computer Vision and Image Processing – Fundamentals and Applications	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://onlinecourses.nptel.ac.in/noc22_ee48/preview">https://onlinecourses.nptel.ac.in/noc22_ee48/preview</a>
VIII Semester						
1	Introduction To Internet Of Things	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105166/">https://nptel.ac.in/courses/106/105/106105166/</a>
2	Deep Learning	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105215/">https://nptel.ac.in/courses/106/105/106105215/</a>

3	Getting Started with Competitive Programming	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106231/">https://nptel.ac.in/courses/106/106/106106231/</a>
4	Deep Learning for Visual Computing	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://onlinecourses.nptel.ac.in/noc22_ee54/preview">https://onlinecourses.nptel.ac.in/noc22_ee54/preview</a>

**List of Swayam/NPTEL courses for the award of Minor Engineering in Information Security:**

II Semester						
S.No.	Course Name	No. of weeks	No. of credits	Start and End Date	Date of Exam	Link for Registration
1	An Introduction to Programming Through C++	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/101/106101208/">https://nptel.ac.in/courses/106/101/106101208/</a>
2	Discrete Mathematics - IITB	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/108/106108227/">https://nptel.ac.in/courses/106/108/106108227/</a>
3	Programming, Data Structures And Algorithms Using Python	8	2	24/01/2022 18/03/2022	27/03/2022	<a href="https://nptel.ac.in/courses/106/106/106106145/">https://nptel.ac.in/courses/106/106/106106145/</a>
4	Discrete Mathematics	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106183/">https://nptel.ac.in/courses/106/106/106106183/</a>
IV Semester						
S.No.	Course Name	No. of weeks	No. of credits	Start and End Date	Date of Exam	Link for Registration
1.	Data Base Management System	8	2	24/01/2022 18/03/2022	27/03/2022	<a href="https://nptel.ac.in/courses/106/105/106105175/">https://nptel.ac.in/courses/106/105/106105175/</a>
2	The Joy of Computing using Python	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106182/">https://nptel.ac.in/courses/106/106/106106182/</a>
3	Discrete Structures	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105192/">https://nptel.ac.in/courses/106/105/106105192/</a>
4	Data Base Management	8	2	24/01/2022 18/03/2022	27/03/2022	<a href="https://nptel.ac.in/courses/106/105/106105175/">https://nptel.ac.in/courses/106/105/106105175/</a>

	System					
<b>VI Semester</b>						
S.No.	Course Name	No. of weeks	No. of credits	Start and End Date	Date of Exam	Link for Registration
1	Cloud computing	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105167/">https://nptel.ac.in/courses/106/105/106105167/</a>
2	Software Conceptual Design	4	1	21/02/2022 18/03/2022	24/04/2022	
3	Fundamental Algorithms: Design and Analysis	4	1	21/02/2022 18/03/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105157/">https://nptel.ac.in/courses/106/105/106105157/</a>
4	Data Analytics with Python	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/107/106107220/">https://nptel.ac.in/courses/106/107/106107220/</a>
5	Computer Architecture	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/102/106102157/">https://nptel.ac.in/courses/106/102/106102157/</a>
6	Ethical Hacking	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105217/">https://nptel.ac.in/courses/106/105/106105217/</a>
7	Python for Data Science	4	1	24/01/2022 18/02/2022	27/03/2022	<a href="https://nptel.ac.in/courses/106/106/106106212/">https://nptel.ac.in/courses/106/106/106106212/</a>
8	Machine Learning, ML	8	2	21/02/2022 15/03/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106202/">https://nptel.ac.in/courses/106/106/106106202/</a>
<b>VIII Semester</b>						
1	Introduction To Internet Of Things	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105166/">https://nptel.ac.in/courses/106/105/106105166/</a>
2	Deep Learning	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105215/">https://nptel.ac.in/courses/106/105/106105215/</a>
3	Getting Started with Competitive Programming	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106231/">https://nptel.ac.in/courses/106/106/106106231/</a>
4	Computer Networks and Internet Protocol	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://nptel.ac.in/courses/106/105/106105183/">https://nptel.ac.in/courses/106/105/106105183/</a>
5	Information Security - 5 - Secure Systems Engineering	8	2	24/01/2022 18/03/2022	27/03/2022	<a href="https://nptel.ac.in/courses/106/106/106106199/">https://nptel.ac.in/courses/106/106/106106199/</a>
6	Social Networks	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106/106/106106169/">https://nptel.ac.in/courses/106/106/106106169/</a>



7	Systems and Usable Security	4	1	21/02/2022 18/03/2022	23/04/2022	<a href="https://onlinecourses.nptel.ac.in/noc22_cs36/preview">https://onlinecourses.nptel.ac.in/noc22_cs36/preview</a>
8	Online Privacy	12	3	24/01/2022 15/04/2022	23/04/2022	<a href="https://onlinecourses.nptel.ac.in/noc22_cs37/preview">https://onlinecourses.nptel.ac.in/noc22_cs37/preview</a>
9	Blockchain and its Applications	12	3	24/01/2022 15/04/2022	23/04/2022	
10	Hardware Security	12	3	24/01/2022 15/04/2022	24/04/2022	<a href="https://nptel.ac.in/courses/106105194/">https://nptel.ac.in/courses/106105194/</a>

## Coursera Equivalent Courses

### List of courses for the award of Minor Engineering in Artificial Intelligence:

Sno	Course Code and Course Name	Course Name	Institute	Credits	Duration in weeks	Start date	Examination	Nptel/Coursera links
<b>Group-I</b>								
1	Scripting Shell/JavaScript/Perl/PHP/HTML/Python	Programming Foundations with JavaScript, HTML and CSS	Duke University	1	4 Weeks	Considered from register ed Date		<a href="https://www.coursera.org/learn/duke-programming-web">https://www.coursera.org/learn/duke-programming-web</a>
2	Functional programming languages- Kotlin/Rust/Go/Haskell/Scala..	Functional Programming Principles in Scala	EPFL	1.5	6 Weeks	Considered from register ed Date		<a href="https://www.coursera.org/learn/progfun1?specialization=scala">https://www.coursera.org/learn/progfun1?specialization=scala</a>

### List of courses for the award of Minor Engineering in Data Science:

<b>Group-I</b>								
	Scripting Shell/JavaScript/Perl/PHP/HTML/Python	Programming Foundations with JavaScript, HTML and CSS	Duke University	1	4 Weeks	Considered from register ed Date		<a href="https://www.coursera.org/learn/duke-programming-web">https://www.coursera.org/learn/duke-programming-web</a>

	Functional programming languages- Kotlin/Rust/Go/Haskell/Scala..	Functional Programming Principles in Scala	EPFL	1.5	6 Weeks	Considered from register ed Date		<a href="https://www.coursera.org/learn/progfun1?specialization=scala">https://www.coursera.org/learn/progfun1?specialization=scala</a>
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### List of courses for the award of Minor Engineering in AR-VR Minors:

Group-I								
	ScriptingShell/Java Script/Perl/PHP/HTML/Python	Programming Foundations with JavaScript, HTML and CSS	Duke University	1	4 Weeks	Considered from register ed Date		<a href="https://www.coursera.org/learn/duke-programming-web">https://www.coursera.org/learn/duke-programming-web</a>
	Functional programming languages- Kotlin/Rust/Go/Haskell/Scala..	Functional Programming Principles in Scala	EPFL	1.5	6 Weeks	Considered from register ed Date		<a href="https://www.coursera.org/learn/progfun1?specialization=scala">https://www.coursera.org/learn/progfun1?specialization=scala</a>
Group-III								
	Agile Development methodologies.	Agile Software Development	University of Minnesota	1	4 Weeks	-	-	<a href="https://www.coursera.org/learn/agile-software-development">https://www.coursera.org/learn/agile-software-development</a>
	Functional programming languages- Kotlin/Rust/Go/Haskell/Scala..	Functional Programming Principles in Scala	EPFL	1.5	6 Weeks	Considered from register ed Date		<a href="https://www.coursera.org/learn/progfun1?specialization=scala">https://www.coursera.org/learn/progfun1?specialization=scala</a>

### List of courses for the award of Minor Engineering in Information Security

Group-I								
1	ScriptingShell/Java	Programming	Duke	1	4 W	Considered from		<a href="https://www.coursera.org/learn/duke-programming-">https://www.coursera.org/learn/duke-programming-</a>

	Script/Perl/PHP/HTML/Python	Foundations with JavaScript, HTML and CSS	University		Weeks	Registered Date		<a href="#">web</a>
2	Functional programming languages- Kotlin/Rust/Go/Haskell/Scala.	Functional Programming Principles in Scala	EPFL	15	6 Weeks	Considered from Registered Date		<a href="https://www.coursera.org/learn/progfun1?specialization=scala">https://www.coursera.org/learn/progfun1?specialization=scala</a>
<b>Group-II</b>								
3	Foundation course on cyber security	Introduction to Cyber Attacks	NYU	1	4 Weeks	-	-	<a href="https://www.coursera.org/learn/intro-to-cyber-attacks?specialization=intro-cyber-security">https://www.coursera.org/learn/intro-to-cyber-attacks?specialization=intro-cyber-security</a>
4		Cyber Attack Countermeasures	NYU	1	4 Weeks	-	-	<a href="https://www.coursera.org/learn/cyber-attack-countermeasures?specialization=intro-cyber-security">https://www.coursera.org/learn/cyber-attack-countermeasures?specialization=intro-cyber-security</a>
5		Real-Time Cyber Threat Detection and Mitigation	NYU	1	4	-	-	<a href="https://www.coursera.org/learn/real-time-cyber-threat-detection?specialization=intro-cyber-security">https://www.coursera.org/learn/real-time-cyber-threat-detection?specialization=intro-cyber-security</a>
<b>Group-III</b>								
6	Linux Operating System	Cyber security Roles, Processes & Operating System Security	IBM	1	4	-	-	<a href="https://www.coursera.org/learn/cybersecurity-roles-processes-operating-system-security">https://www.coursera.org/learn/cybersecurity-roles-processes-operating-system-security</a>
7	Cyber security tools in kali linux	Introduction to Cyber security Tools & Cyber Attacks	IBM	1	4 Weeks	-	-	<a href="https://www.coursera.org/learn/introduction-cybersecurity-cyber-attacks?specialization=ibm-cybersecurity-analyst">https://www.coursera.org/learn/introduction-cybersecurity-cyber-attacks?specialization=ibm-cybersecurity-analyst</a>
8	Vulnerability	Network Security & Database Vulnerabilities	IBM	1	4 Weeks	-	-	<a href="https://www.coursera.org/learn/network-security-database-vulnerabilities">https://www.coursera.org/learn/network-security-database-vulnerabilities</a>

Group-IV								
9	Capstone Project	Cyber security Capstone : Breach Response Case Studies	IBM	1	4 Weeks	-	-	<a href="https://www.coursera.org/learn/ibm-cybersecurity-breach-case-studies">https://www.coursera.org/learn/ibm-cybersecurity-breach-case-studies</a>

*Note: The above semester-wise grouping of courses is only suggestive in nature. Hence, Students can pursue and complete the above courses irrespective of the semester in which they are in.*



(Dr. K. Radhika)

**HoD, IT**