# Frame work for systems engineering

**Objectives:**

**To bridge the gap between curriculum and employment.**

- Many upcoming Engineers lack the utility of the education they are receiving and the employment (in India and overseas) that they are wanting to get an employment that is waiting for them.
- They lack this information at the time of planning their career path.
- Many engineering colleges lack staff who can help them in this.
- Many upcoming engineers get carried away with social pressures.
- With this they pick up employment in which they are not confident

**Course Modules :**

- Students require exposure (attending conferences) / training to engineers, to technology (such as IOT) developments, business developments etc.
- Encourage participation in conferences / workshops on systems engineering.
- Mentoring of students.
- Few final year engineers and most of them got benefitted with that. They scored distinction and very good employment that they are happy with

## Module 1 ( Horizontal )

| Course title | Topics (for the courses offered) | Duration (hours) | Highlights | Benefits to the students (trainee) |
|---|---|---|---|---|
| Systems Engineering | Modeling and simulation (M&S) with examples | | No spoon feeding<br><br>Mentoring approach<br><br>Self-learning<br><br>Example driven<br><br>At the beginning of a course record the expectations and review at the end | Improved ability in correlating data & processes<br><br>Improved ability in delivering agreed artifacts<br><br>Over all confidence boosting |
| | Predictive analytics | | | |
| | Telecom Engineering | | | |
| | M & S with examples | | | |
| | Design validations including functional and | | | |

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|---|---|---|---|---|
| | non-functional features. | | Horizontal, cutting across all the verticals like, teleco, BFSI, rail etc.<br><br>Forecasting, optimization, root cause analysis etc | |
| | | | | |
| | Reliability Eng | | | |
| | QA Engineering | | | |
| | Tools for simulations, analytics etc | | | |
| Performance engineering (PE) | Application (APE), Network (NPE) | | | |
| Advanced algorithms, technologies and solutions | Predictive analytics | | | |
| | MDM, iNoC etc | | | |
| | AI & M2M leading to IOT | | | |
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## Module 2 (QA Engineering)

| | | Duration in hours | | | |
|---|---|---|---|---|---|
| Sl No | Date | Estimated | Actual | Category | Topic |
| 1 | | | | Fundamentals | Objectives |
| 2 | | | | | Terminology |
| 3 | | | | | Types of testing |
| 4 | | | | | Measurements |
| 5 | | | | Processes | Functional |
| 6 | | | | | Non functional |
| 7 | | | | | SDLC |
| 8 | | | | | Agile |
| 9 | | | | Tools | Jira |
| 10 | | | | | Load Runner |
| 11 | | | | | Selenium |
| 12 | | | | Quality Assurance | Frame work |
| 13 | | | | | Failure and faults analysis |
| 14 | | | | | FMECA & Reliability |
| 15 | | | | Modeling and simulation | Theory |
| 16 | | | | | Examples and tools |
| 17 | | | | | LSPE / IPTV |
| 18 | | | | Design of experiments | BBN / Taguchi |

## Module 3 - Upcoming Technologies

| | | Duration in hours | | | |
|---|---|---|---|---|---|
| Sl No | Date | Estimated | Actual | Category | Topic |
| 1 | | | | Fundamentals | Objectives |
| 2 | | | | | Terminolagy |
| 3 | | | | | Types of testing |
| 4 | | | | | Measurements |
| 5 | | | | Processes | Functional |
| 6 | | | | | Non functional |
| 7 | | | | | SDLC |
| 8 | | | | | Agile |
| 9 | | | | Tools | Jira |
| 10 | | | | | Load Runner |
| 11 | | | | | Selenium |
| 12 | | | | Quality Assurance | Frame work |
| 13 | | | | | Failure and faults analysis |
| 14 | | | | | FMECA & Reliability |
| 15 | | | | Modeling and simulation | Theory |
| 16 | | | | | Examples and tools |
| 17 | | | | | LSPE / IPTV |
| 18 | | | | Design of experiments | BBN / Taguchi |

## Module 4 Business Strategy

| Course title | Topics (for the courses offered) | Duration (hours) | Highlights | Benefits to the students (trainee) |
|---|---|---|---|---|
| Business strategies | Modeling and simulation (M&S) with examples | | No spoon feeding<br><br>Mentoring approach<br><br>Self-learning<br><br>Example driven<br><br>At the beginning of a course record the expectations and review at the end<br><br>Horizontal, cutting across all the verticals like, teleco, BFSI, rail etc.<br><br>Forecasting, optimization, root cause analysis etc | Improved ability in correlating data & processes<br><br>Improved ability in delivering agreed artifacts<br><br>Over all confidence boosting |
| | Predictive analytics | | | |
| | Telecom<br><br>Engineering<br><br>Revenue<br><br>Expenditure<br><br>Systems<br><br>Customer behavior | | | |