

**A title should be concise and declarative, reflecting the main topic adequately and not too long**

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## ABSTRACT

*Abstrak memuat 3 hal penting yaitu 1) masalah yg diteliti & tujuan; 2) langkah dan parameter yg diukur dlm penelitian; 3) simpulan & implikasi. An abstract should be factual that represent a concise and meaningful description of paper contents. It is presented briefly between 150-250 words. The abstract should contain the problem statements with a brief background, the research objectives, the research approaches or the proposed methods, the main results, and significant findings, including the valuable conclusions and implications. It should be an abbreviated and accurate presentation of the paper contents to deliver the work's critical outputs. There will be ideally quantified data to provide sufficient information for readers. The abstract should not contain any equations, references, or footnotes. This style may help the authors to organise an appropriate abstract of a research article, for example, starting from a **brief background** (1-2 sentences), **purposes** (1-2 sentences), **method and research scenarios including various specimens and investigated parameters** (2-6 sentences), **results and key findings** (2-5 sentences), **valuable conclusions and implications** (1-2 sentences).*

**Keywords:** *Keywords are commonly composed of about five words or phrases in alphabetical order, separated by commas, clearly describing the subject matter.*

## 1. INTRODUCTION

Uraikan secara kronologi dan logis hingga muncul ide riset ditunjang dengan literatur yg mutakhir & relevan. Uraikan apa yang sudah diteliti dan bagian mana yang belum diteliti sehingga muncul gap analysis. Tunjukkan bahwa masalah yang diteliti belum terpecahkan oleh peneliti terdahulu. Ceritakan apa fokus penelitian anda, termasuk alasan-alasan mengapa masalah itu dipandang menarik, penting, dan perlu diteliti untuk mencari pemecahannya. Tuliskan tujuannya dikaitkan dng masalah yg dihadapi dan jawabannya akan ditulis pada kesimpulan.

This template represents an essential guide for submitting a research article to the International Journal of **Applied Research and Smart Technology (ARSTech)**. The manuscript should be organised in the following order: The title of a paper, author's names and affiliation, Abstract, Keywords, Introduction, Body of an article (in following headings), Conclusion, Declaration of competing interest, Acknowledgements (where applicable), References, and Appendices (where applicable). The authors should demonstrate a manuscript of approximately 2,500 – 4,000 words of the primary texts that counted from the introduction, method, results, and discussion section. It can include 8-12 figures and 2-4 tables. The text must be all consistently written in the English style (American or British usage is accepted, but not a mixture of both).

The introduction should provide adequate information, including background and statement of the problem, review of the relevant literature, and previous research in the research area. It should be understandable to readers from a broad range of scientific disciplines. The background of the problem reflects the importance of the problem being studied based on the researcher's view instead of the need for knowledge development.

The introduction may contain most of the references cited in the prepared manuscript. The cited references are written by number(s) in square brackets in line with the text. The actual authors can be directly stated, but the reference number(s) must always be given. For example: According to Ilio et al. [1] ....., ..... compared to the essential findings in the preliminary research [2]. Self-citation work must be for genuine scientific reasons and not to increase your citation counts or enhance the visibility of your work (or those of your associates).

A literature review serves to build a concept or a theory as the basis of the current study. It is not solely to rewrite in sequence the essence of reference articles in the introduction, but also to show the relevance of the cases being studied with the literature that used to be known relatively and contribute to new research become apparent.

Introduction, brief references to prior work on the subject, should state the reason for the research focus. The introduction summarises what the researcher proposes to report and highlights how it moves from earlier work. An introduction needs to state the work's objectives and describe an adequate background in simple statements. Avoid a detailed literature survey or a summary of the research results.

The following tips may help authors organise an excellent introduction to emphasise the manuscript's uniqueness. Provide background information to put the work in the context, supported by broadly relevant articles and up-to-date worldwide. What is a problem? What is known regarding the topic? What is unknown about the topic? Is there any existing solution? What is its main limitation? Why is it important to bring up this topic to fill the gap in scientific knowledge? End the introduction by stating the research focus.

## **1.2. Text layout and section headings**

The manuscript should be written in size A4 (210mm by 297mm). It should be on a single column with all margins of 2.5 cm. The texts must be typed in one-half spacing using Times New Roman 12 and extra line spacing between equations, illustrations, figures, and tables. Each paragraph should be indented 10 mm. Sub-headings should be positioned at the left margin, in a bold-faced font, the same size as the main text (TNR 12 point) with one a half line spacing above and below. The first letter of each word in the subheading should be capitalised as exemplified above.

### 1.2.1. Sub-sub headings

Sub-subheadings should be typed using italic font, the same size used for the body of the text (TNR 12-point italics). A capitalised is only for the first letter in the subheading. Note that a blank line precedes and follows the subheading.

### 1.2.2. Languages

The ARSTech journal's language is English (British or American spelling, but it should be consistent with only a single style in the same manuscript). Inclusive language recognises diversity, respects all people, is sensitive to differences, and encourages equal opportunities.

### 1.2.3. Citations in text

Please ensure that any references cited in the text are also in the list of references (and vice versa). Unpublished results and personal communication are not recommended in the reference list. Citations must be numbered consecutively in square brackets [3]. The sentence punctuation should be located after the brackets [4]. Avoid massive lumping references such as [5-17]. A lumping reference is only allowed for less than three sources. In the case of multiple references [5][6][7], it should be numbered in the following manner [5-7]. In sentences, refer simply to the reference number [8]. Do not use 'Ref—[8]' or 'reference [8]' except at the beginning of a sentence. The references should be arranged in the citation order in the text, not in alphabetical order.

## 1.3. Equations, Symbols, and Units

Equation numbers should appear in parentheses and be numbered consecutively. All equation numbers must appear on the right side of the equation and be referred to within the text. Two different types of styles can be used for equations and mathematical expressions. The use of metric units (International System) is strongly recommended, and mixed units should be avoided. The definition of symbols should be written in paragraph form, not listed in bullets. See the following example.

$$H = \frac{P}{\gamma} = \frac{P_d - P_s}{\rho \cdot g}, \dots\dots\dots 1)$$

Where  $H$  is the head pump (m),  $P_d$  is the discharge pressure at the pump outlet (N/m<sup>2</sup>),  $P_s$  is the suction pressure at the pump inlet (N/m<sup>2</sup>),  $\rho$  is the fluid density (kg/m<sup>3</sup>),  $g$  is the gravity (m/s<sup>2</sup>), and  $\gamma = \rho g$ .

## 1.4. Abbreviation and acronyms

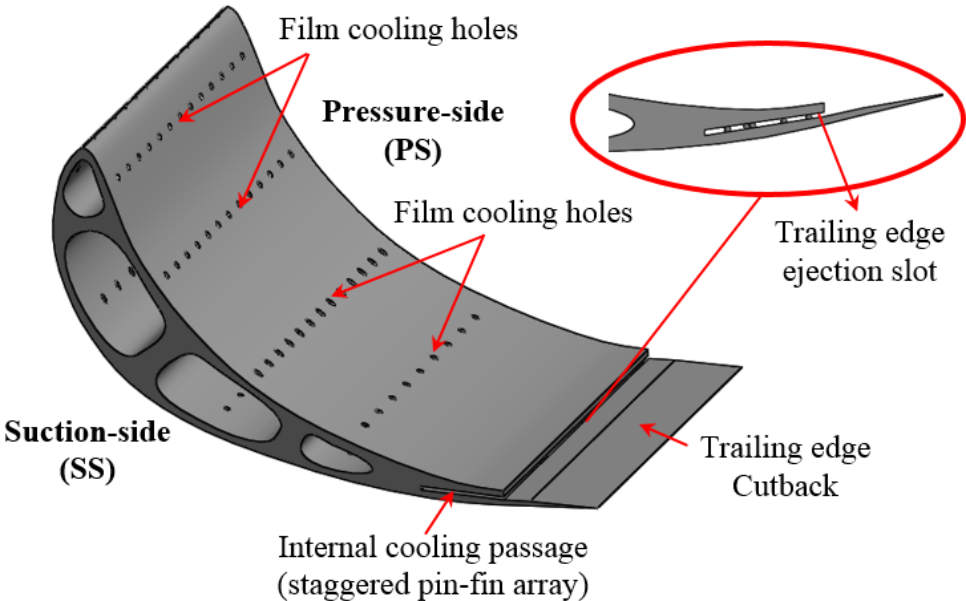
Abbreviation and acronyms should be declared the first time it appears in the text, even after being defined in the abstract. Do not use abbreviations in the title.

## 1.5. Figures and Tables

Please do not use colour in the figures unless it is essential to interpret figures correctly. Figures (diagrams and photographs) should be numbered consecutively using Arabic numbers. The text description in the figures must be clean and proportional compared to the primary text's size font. Figures should be centred in a column and should have a figure caption placed

underneath. Captions should be centred in the column, in the format "Figure 1" and are in upper- and lower-case letters. Figures / pictures must be submitted in digital format, with a high-and-good resolution. Table captions appear centred above the table in upper- and lower-case letters. When referring to a table in the text, "Table" with the correct number is used. Captions should be centred in the column, in the format "Table 1" and are in upper- and lower-case letters. Tables are numbered consecutively and independently of any figures. All figures and tables must be incorporated into the text.

An example of a figure



**Figure 1:** Sketch of a blade trailing-edge cutback cooling [4].

An example of a table.

**Table 1:** The primary dimension of the specimen.

$\alpha$ (degree)	Dimension		$t/H$	$H_{se}$ at the slot-exit (m)	the slot-exit area (mm <sup>2</sup> )
	$t$ (mm)	$H$ (mm)			
5	4.8	4.8	1.0	4.81	57.81
10	4.8	4.8	1.0	4.87	58.48
15	4.8	4.8	1.0	4.94	59.39

*Note:* No vertical lines in the table

## 2. MATERIAL AND METHODS

Rancangan penelitian merupakan jembatan antara hipotesis dng cara penelitian, yang mengandung uraian singkat langkah-langkah yang akan dikerjakan untuk membuktikan kebenaran hipotesis. Riset yang baik harus objektif dan faktual mengacu tahapan penelitian yang transparan, artinya apabila ada orang lain akan meneliti kembali riset ini, maka orang lain bisa melakukan kembali tahapan-tahapan secara mudah.

It is an introductory section to describe the experimental methods and the materials used after the introduction. In experimental-based research, this section can be defined by a sub-title of material and methods, experiments, or other more appropriate contexts for the research conducted. This section presents the paradigms/approaches/methods used in the study, and it should explain sufficient details to allow the work to be realised by an independent researcher.

The section describes a proposed strategy and research design, materials/specimens, experimental apparatus, measurement instrumentation, research process, and data collection, including data analysis. Detailed descriptions of well-known techniques and equipment are not required. If the research quotes a previously published method, the sources must be cited and marked in the primary texts. A modification of the existing techniques or installation should be fairly described. For experiments, an experimental setup and specimen can be commonly provided using a sketch or figures, respectively. Meanwhile, other methods can be defined accordingly.

A related theory can be included in the section. The article's background already addressed in the introduction should be extended, not repeated, by a theory section and lay the foundation for further work. There is no need for detailed descriptions of well-known theories.

Picture, graph, sketch, or diagram should be inserted here in the centre position

**Figure 2:** Experimental apparatus.

### 2.1. Subheading 1

This template will present the research materials and method in a concise and meaningful description. It is possible to insert "figures" to provide a clear explanation. ....

Picture, graph, sketch, or diagram should be inserted here in the centre position

**Figure 3:** Name of figure

#### 2.1.1 Sub-sub heading 1

Follow the previous guideline. Sub and sub-sub headings can be provided to have a complete and clear explanation of the manuscript. Relevant equations that directly link graphs expression can be presented in this section or close to the discussion.

#### 2.2.2 Sub-sub heading 2

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### 2.3. Subheading 2

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### 2.4. Subheading 3

Follow the previous guideline. Sub and sub-sub headings can be provided to have a complete and clear explanation of the manuscript. Relevant equations that directly link graphs expression can be presented in this section or close to the discussion.

## 3. RESULTS AND DISCUSSION

Peneliti menerangkan pengamatan berbasis data & fakta dengan logis dan kronologis. Jelaskan temuan-temuan pentingnya, sehingga bukan sekedar menampilkan tabel, gambar atau hasil analisis statistik. Penulis hendaknya berargumen secara logis, ungkapkan temuan apa yang baru, orisinalitas dan apa arti penting dari hasil penelitian.

The results and discussion section's description should be well-prepared, objectives, clear, concise, and meaningful to highlight the essential outcomes. A combined section of results and discussion is often appropriate to avoid unnecessary repetition, and it is necessary to prevent unsupported elaboration of hypotheses and lengthy exposition of ideas.

As guidance, it is suggested to state the main observations and results chronologically based on the research achievement. It should include 1) the observational findings, 2) the scientific explanation (academic discussion) of the data obtained relating to the research purposes, 3) interpretation of the research findings and critical discussion by comparing to available data in the open literature, and 4) in-depth discussion of the latest key data findings and the implication to the research fields.

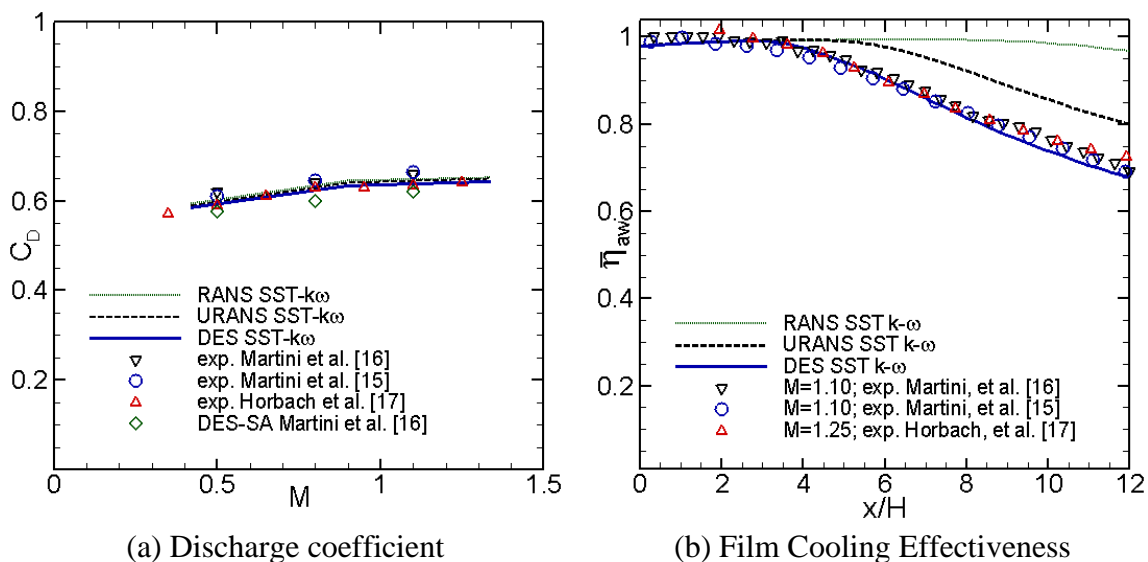


Figure 4: Validated data



The description of results and discussion should be supported by photos, tables, charts, pictures, or graphs to have precise information. The default graph colour is black-and-white. (See an example of Figure 4 in terms of layout and how to prepare charts). The results are usually placed as close as possible to the discussion so that readers can more easily follow the description. The discussion can be theoretical explanations qualitatively, quantitatively, or even statistically. Besides, the main findings can be compared to similar studies carried out by other researchers to evaluate the research achievements to show the research's contribution, as exemplified in Figure 4. However, it is also necessary to avoid extensive citations and excessive discussion of other studies.

**3.1. Subheading**

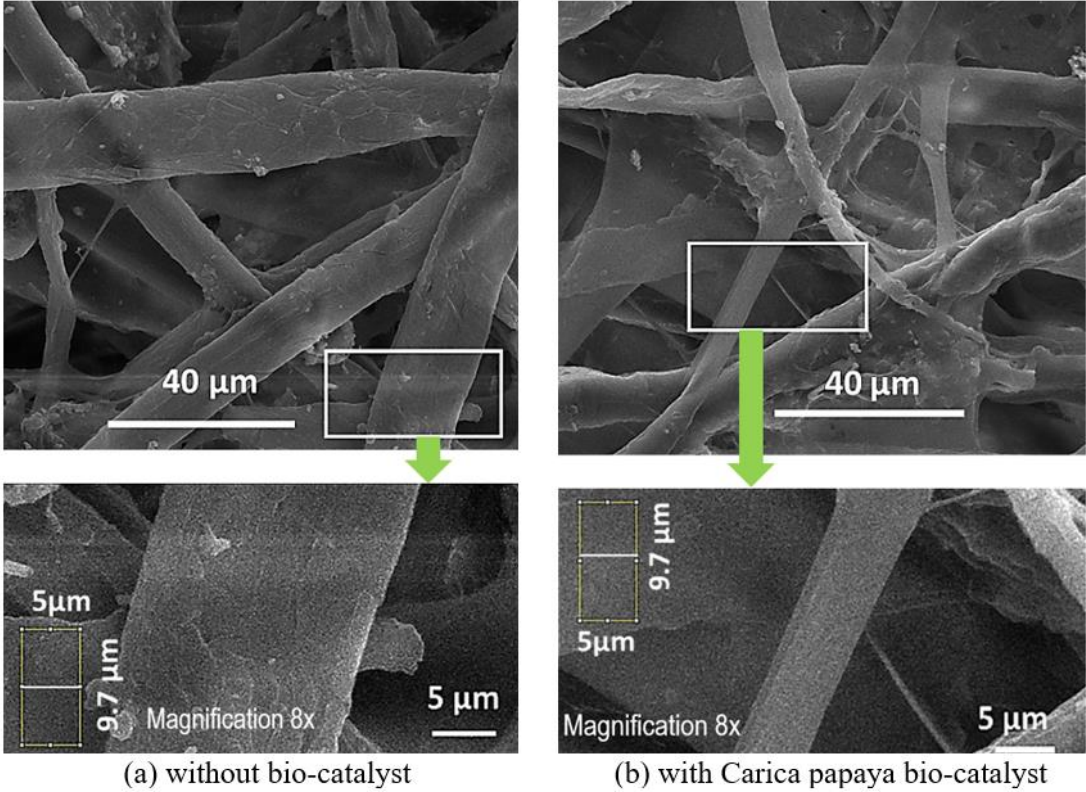
Sub and sub-sub heading of this section can be added up to reach enough information and discussion to answer the mission-and-objective of the submitted paper. ....

Picture, graph, sketch, or diagram should be inserted here in the centre position

**Figure 5:** Name of figure

**3.2. Subheading**

Sub and sub-sub heading of this section can be added up to reach enough information and discussion to answer the mission-and-objective of the submitted paper.



**Figure 6:** Name of figure

#### 4. CONCLUSION

Kesimpulan merupakan pernyataan singkat dan tepat yang dijabarkan dari hasil penelitian dan pembahasan untuk membuktikan kebenaran hipotesis. Tidak ada lagi pembahasan pada bagian simpulan. Apabila ada ungkapan implikasi dan rekomendasi akan lebih baik. The study's main conclusions may be presented in a short conclusions section, which may stand alone. Although a conclusion may review an article's contributions, it is not a duplication of the abstract. This section contains key findings, implications, and suggestions. The conclusion states whether the research objectives have been achieved or the hypothesis has been proven and not just repeat the research results obtained by previous researchers. No cited references or figures in conclusion. The conclusion should be concise and precise statements from essential research findings and discussions to prove the validity of the hypotheses. The conclusion should consider the relationship between research problems, objectives, and hypotheses. A conclusion section must indicate the advantages, limitations, and possible paper applications. The implication is a brief statement relating to research findings to benefit scientific development and engineering application.

#### DECLARATION OF COMPETING INTEREST

Example: The authors declare no competing financial interests or personal relationships that could have appeared to impact the work reported in this paper.

#### ACKNOWLEDGEMENT

Example: This research was funded by the University of ..... through a joint research and development program through contract number 1234567890.

#### REFERENCES

All publications cited in the text must be listed in single spacing using the IEEE style as in the examples below. **Use of DOI is highly encouraged.** The ARSTech journal suggests citing more than 25 references for a **research article**, whereas a **review article** should cite more than 60 references from journal articles to reach the highest quality of the manuscript. It must be relevant and up-to-date to support the literature review. It would be best to cite articles from the last five years. The list of references indents 10 mm from the second line of each authority. Personal communications and unpublished data are not acceptable references.

- [1] O. Gim and G. Lee, 'Flow characteristics and tip vortex formation around a NACA 0018 foil with an endplate', *Ocean Engineering*, vol. 60, pp. 28–38, 2013. <https://doi.org/10.1016/j.oceaneng.2012.12.009>.
- [2] M. Effendy, Y.F. Yao, and J. Yao, 'Effect of mesh topologies on wall heat transfer and pressure loss prediction of a blade coolant passage', *Applied Mechanics and Materials*, vol. 315, pp. 216–220, 2013. <https://doi.org/10.4028/www.scientific.net/AMM.315.216>.
- [3] P.E. Sitorus, J.-S. Park, and J.H. Ko, 'Hydrodynamic characteristics of cambered NACA0012 for Flexible-wing application of a flapping-type tidal stream energy harvesting system,' *International Journal of Naval Architecture and Ocean Engineering*, vol. 11, no. 1, pp. 225–232, 2019. <https://doi.org/10.1016/j.ijnaoe.2018.04.003>.



- [4] M. Effendy, Y. Yao, J. Yao, and D.R. Marchant, 'DES study of the blade trailing edge cutback cooling performance with various lip-thicknesses', *Applied Thermal Engineering*, vol. 99, pp. 434–445, 2016. <https://doi.org/10.1016/j.applthermaleng.2015.11.103>.
- [5] G. Di Ilio, D. Chiappini, S. Ubertini, G. Bella, and S. Succi, 'Fluid flow around NACA 0012 airfoil at low-Reynolds numbers with hybrid lattice Boltzmann method', *Computer and Fluids*, vol. 166, pp. 200–208, 2018. <https://doi.org/10.1016/j.compfluid.2018.02.014>.

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### The explanation of reference sources

Please cite only the leading scientific publications that have read to develop new work. Do not inflate the manuscript using too many references. It is better to avoid excessive self-citations. Self-citation work must be for genuine scientific reasons and not to increase your citation counts or enhance the visibility of your work (or those of your associates). For accuracy, each reference should be checked from the sources (authors name, volume, issue, year, DOI Number). Use a "Reference Manager Applications" such as Mendeley, EndNote, and Zotero to be more comfortable organising the references. The recommended types of references are Journal Article, Proceedings Paper, Book, Magazine Article or Book Chapter, Dissertation or Thesis, Patents, and Technical Report. The use of internet sources is not preferable. See the following examples

### Modality of Journal Papers' quote:

- [1] A. Author1, B. Author2, C. Author3, and D. Author4, 'The title of the article', *The name of a journal*, vol. x, no. x, pages, year. DOI number.
- [2] M. Effendy, Y.F. Yao, J. Yao, and D.R. Marchant, 'Detached eddy simulation of blade trailing-edge cutback cooling performance at various ejection slot angles', *International Journal of Heat and Fluid Flow*, vol. 80, pp. 108487, 2019. <https://doi.org/10.1016/j.ijheatfluidflow.2019.108487>
- [3] A. Jamaldi and H.K. Hassan, 'Pressure Performance prediction of trailing-edge cooling system of gas turbine blade using detached eddy simulation', *Applied Research and Smart Technology (ARSTech)*, vol. 1, no. 1, pp. 16–21, 2020. <https://doi.org/10.23917/arstech.v1i1.15>

**Modality of Proceedings Papers' quote:**

- [4] A. Author1 and B. Author2. 'The title of the article', *The name of Proceeding*, volume, pages, year. DOI number.
- [5] M. Effendy, Y. Yao and J. Yao, 'Comparison study of turbine blade with trailing-edge cutback coolant ejection designs', *Proceeding of the 51<sup>st</sup> AIAA Aerospace Sciences Meeting*, Texas, 2013. <https://doi.org/10.2514/6.2013-548>
- [6] M. Effendy, Y.F. Yao, and J. Yao, 'Pressure loss and wall heat transfer characteristics in blade trailing-edge cooling passage', *Proceeding of the International Symposium on Turbulence, Heat and Mass Transfer, 2012*.  
<https://doi.org/10.1615/ICHMT.2012.ProcSevIntSympTurbHeatTransfPal.560>

**Modality of Books' quote:**

- [7] A. Author1, '*The Title of the Book*', edition, Publisher, year.
- [8] H. Settles, '*Engine Technology*', 1st edition, White Word Publications, 2012.

**Modality of Theses' or Dissertation' quote:**

- [9] A. Author, '*The title of the thesis/dissertation*', Theses/Dissertation, The Name of University/Institute/College/School, Year.
- [10] M. Effendy, *Investigation of turbine blade trailing edge cooling and thermal mixing characteristics*, Ph.D. Theses, School of Aerospace Engineering, Kingston University London, UK, 2015.

**Modality of Patent' quote:**

- [11] A. Author1, '*The title of the patent*', Patent number, year.
- [12] C.P. Lee, *Turbine blade trailing edge cooling openings and slots*, EP1065344-A2 (Patent), 2001.

## SUBMISSION CHECKLIST

All items must be **YES** when submitting to ARSTech Journal to ensure a submitted manuscript has been well-prepared with the best quality. **Authors should include the following checklist at the end of the document when submitting.**

General Format			
No	Item	Yes	No
1	The manuscript has been well-prepared using the ARSTech submission template.		
2	The manuscript has been written in a single column using Times New Roman 12-pt font.		
3	The title reflects the main topic adequately and is not too long.		
4	The number of authors is limited to up to six authors.		
5	The authors and affiliations have been correctly written.		
	a. Affiliation of all authors		
	b. E-mail of all authors		
6	Indicate that one of the authors is the corresponding author.		
7	The manuscript's length is not less than 2,500 words (excluding abstract, author information, and reference list). The number of words is counted only from the sections, i.e., introduction, methods, results and discussion, and conclusion.		
8	All numbers are written in International System units		
9	The manuscript contains the core contents: an introduction with literature review, methodology, results, and discussion, including a conclusion.		
10	The manuscript is organised with a maximum of 2 levels of sections		
11	A competing of interest has been stated correctly after the conclusion.		
12	Acknowledgement has been provided accurately before the references list.		
Abstract			
No	Item	Yes	No
1	The abstract has been written between 150-250 words considering the guidelines of ARSTech Journal.		
2	Contains a brief background		
3	Contains the purpose		
4	Contains the proposed methodology/research approach		
5	Contains the essential findings / conclusion		
6	Contains values / originality		
7	The abstract has been completed with keywords		

Figures (if applicable)			
No	Item	Yes	No
1	All figures are clear and readable (image, text, and legend)		
2	All figures are informal style, without redundant title		
3	All information in the figure is in English, and all decimal is written in international standard, using point (.), not a comma (,)		
4	All figures have captions (at the bottom) with consecutive numbers.		
5	All figures are cited in the text using a consistent citation style.		
6	Never citing the figures using below and above.		
Tables (if applicable)			
No	Items	Yes	No
1	All texts in the tables are clear and readable.		
2	All tables are in a formal style.		
3	All information in the table is in English, and all decimal is written in international standard, using point (.), not a comma (,)		
4	All tables are captioned on top with consecutive numbers.		
5	All tables are cited in the text using consistent citation.		
6	Never citing the table using below and above.		
Figures and Tables (if applicable)			
No	Items	Yes	No
1	The number of figures is not more than 12.		
2	The number of tables is not more than 4.		
3	Figures in the graph are not redundancy in the previous table data presented.		
References			
No	Item	Yes	No
1	References list and citation consistently follow the standard of ARSTech journal.		
2	Journal names in the reference list are not abbreviated, but they should be in full name format.		
3	All references mentioned in the reference list are cited in the text, and vice versa		
4	Citation in the text follows general consistent citation rules		
5	A <b>research article</b> cites more than 25 references, whereas a <b>review article</b> cites more than 60 references, and is completed by DOI		
6	Book sources are not more than 20% of the reference list		
7	Self-citation in the list is not more than 2.		
8	Write all authors in the reference list unless authors are more than 7 (write the first 6, then et al.)		